9F4B-R.3043. A

107-01-140

NIKONOS IV-A

ニコノス IV-A

REPAIR MANUAL

修 理 指 針

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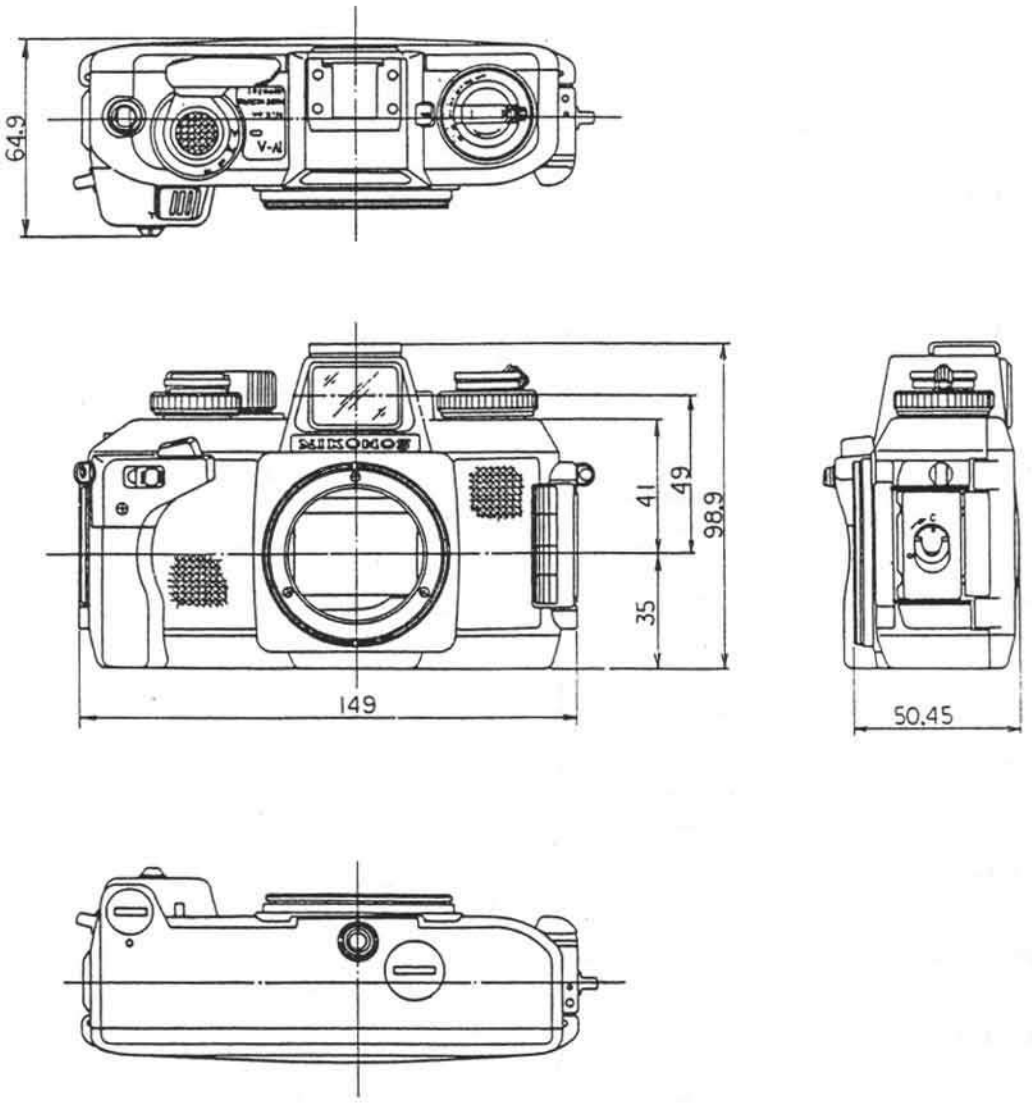


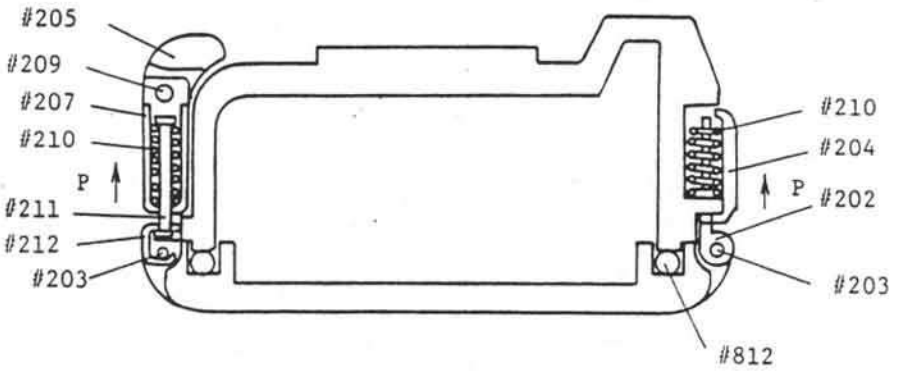
[2] Specifications

Type of camera:	35 mm single-lens reflex (waterproof)
Film available:	Cartridge-rolled 35 mm film
Picture format:	24 mm x 36 mm
Lens available:	W-Nikkor 35 mm f/2.5 as standard
Lens mount:	Nikonos mount
Shutter:	Vertically traveling metal focal-plane shutter; electromagnetically controlled; special blade provided for avoiding metering-light reflection and light-leakage
Shutter speed:	On Auto: stepless speed delivery from 1/30 sec. to 1/1000 sec. On M90: 1/90 sec. mechanically controlled On Bulb: Bulb
Viewfinder	Inverted Galilean-Albada finder; a mark for parallax-compensation provided (min. 0.8 m) Frame coverage: 85 % Magnification: 0.55 X Diopter: 0.9 DP Eyepoint: 40 mm
Viewfinder display:	LED lights up when shutter speed is from 1/30 sec. to 1/1000 sec.; LED-ready light activated by flash unit
Film-advance lever:	Wound in single stroke or series of strokes; 144° winding angle; pull-out-knob provided
Frame counter:	Additive type; automatic shutter control remains inoperative (speed of 1/1500 sec. only) before frame counter reaches "1"
Film rewind:	By crank after shutter mode selector is set to "R"; R-setting prohibits shutter release
Exposure metering:	TTL center-weighted/shutter curtain-reflected/stop-down measurement with SPD; center-weight rate: approx. 40 %
Exposure information LED:	LED lights up when shutter delivers speeds of from 1/25 sec. to 1/1000 sec.; LED blinks when shutter delivers critical speeds of slower than 1/125 sec. or faster than 1/1000 sec.

Metering range:	EV8 to EV19 (i.e. f/2.8 at 1/30 sec. to f/22 at 1/1000 sec. with ASA/ISO 100 film)
Film-speed setting:	ASA/ISO 25 to ASA/ISO 1600 in increments of 1/3 EV
Shutter release button:	Meter becomes ON when depressed halfway; meter then remains on for 20 sec. ± 10 after finger is taken off button.
Synch connector:	Press-in-fit terminal; special water-proof connector
Flash synchronization:	X contact only; with own speed-light SB-101, flash synch is automatically set at 1/90 sec. when shutter mode selector is set to auto; LED-ready light turns on.
Batteries:	Two 1.5 V silver-oxide (G13 type) batteries
Battery check:	Meter-LED or LED-ready light turns off when battery voltage is less than approx. 2.58 V
Waterproof:	Withstand pressure of up to 6 kg/cm^2 at depths of up to 50 m (160 feet)
Dimensions:	98.9 mm (H) x 149 mm (W) x 56 mm (D)
Weight:	Approx. 730g (without lens)

[3] Mechanism

1. Camera Back and Buckle



Buckle

Hinge

Fig.1 Camera back; top-sectional view

Differing from the earlier models, the Nikonos IV-A uses a swing-open camera back. An O-ring is crushed with spring-loaded hinge and buckle for waterproof. (Fig.1) The ring locates in the groove of Camera back #201. Hinge #202 is jointed to Shaft #203. Hinge #202 is loaded with Spring #210. When closing Camera back #201, #202 is pulled in the direction of P by means of extension spring. Thus O-ring #812 is crushed between #201 and Outer housing #2.

Buckle A #205 and Buckle B #207 are jointed with Shaft #209. #205 is jointed also to Pin #208 of Outer housing #2. Buckle claw #212 engages with Shaft #203 of Camera back #201. Buckle B #207 is loaded with Spring #210. Thus #207 is pulled in the direction of P to crush O-ring #812 when closing Camera back #201.

See Fig.2. Pulling Buckle A #205 in the direction of A opens Camera back #201. Buckle claw #212 disengages from Shaft #203. #205 will be interfered with Outer housing #2 so that #212 may not scratch the working face of #2 with O-ring #812.

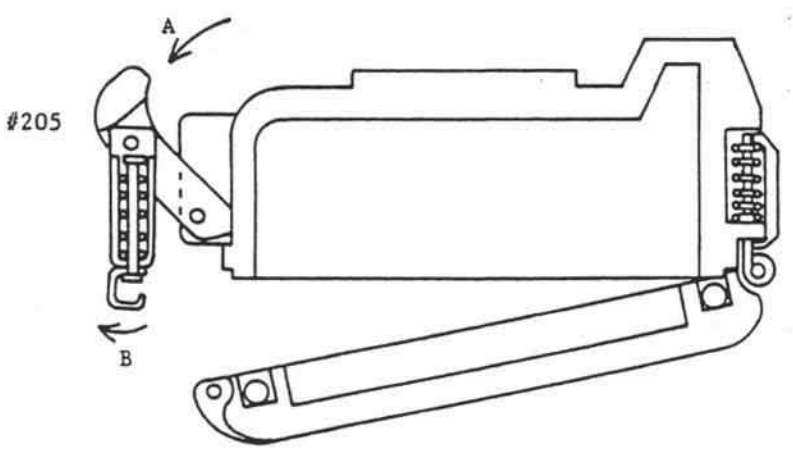
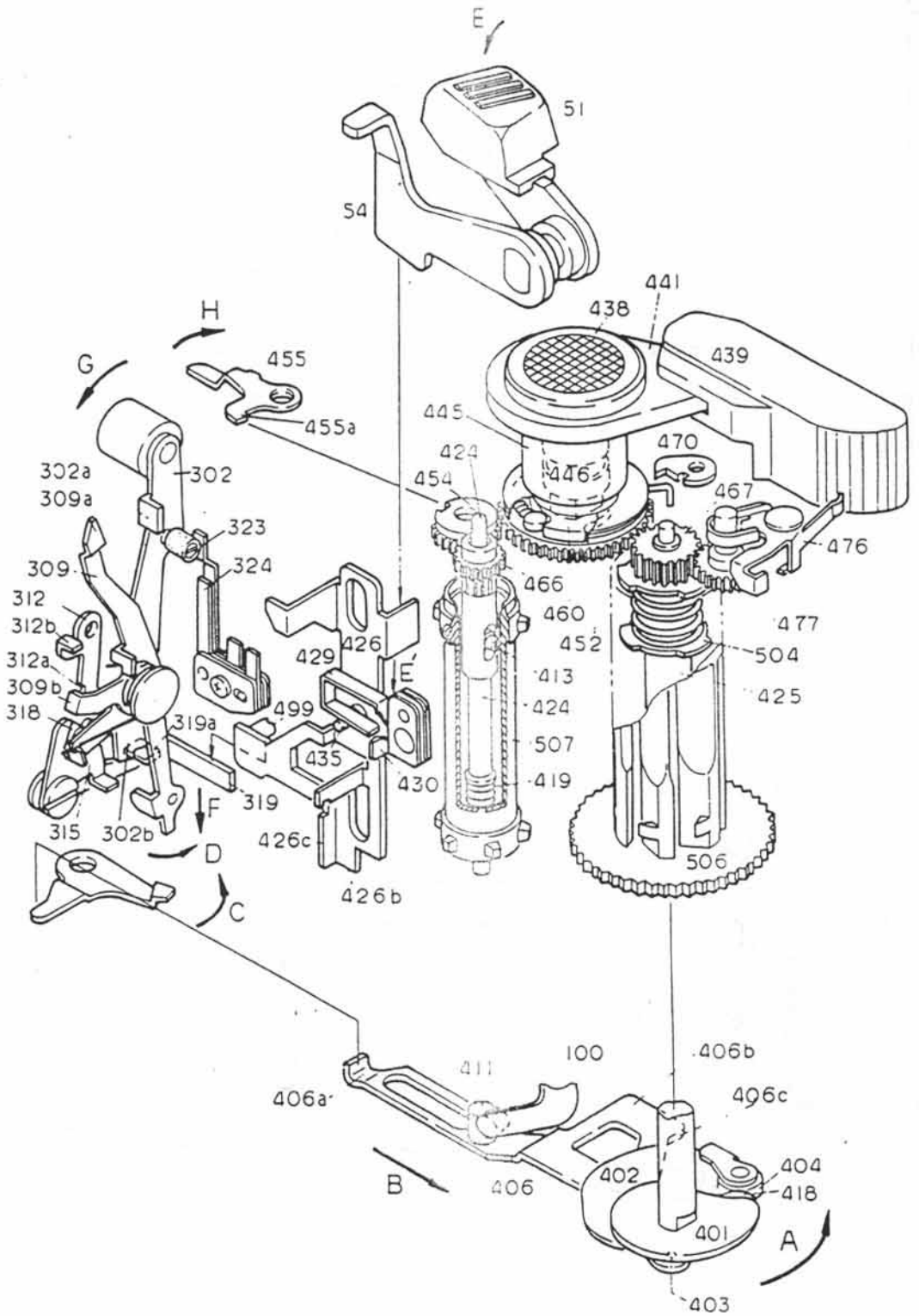


Fig.2 Camera back; top-sectional view

2. 巻上、レリーズ機構

Film-advance and Shutter Charge/Release



2. Film-advance and Shutter Charge/Release

The Nikonos IV-A uses the film-advance mechanism of the Nikon EM after changing some sections of the original design. Stroking Film-advance lever knob #439 counterclockwise rotates Film-advance lever #441, Film-advance shaft #446 and Clutch cam #460. Sprocket idle gear #453 is engaged with Film-advance gear #452, and when #453 rotates, Sprocket stopper #454 rotates as one unit. #454 has Cutout 454 a. #453 turns also Sprocket gear #466, thus, through Sproket screw #413, Sproket #507 rotates. Spool gear #467 is engaged with Film-advance gear #452. But, #467 is also engaged with Frame counter gear #477, which operates the frame counter. Spool shaft #425 rotates as one unit with #467. One stroke of Film-advance lever #441 turns #425 one full turn. #425 makes the rotation of Take-up cam #401. The side face of #401 comes in contact with Film-advance cam roller #404 which is fixed on Charge transmission lever #402. When Take-up cam #401 turns one full turn, #402 swings in the direction of Arrow A and backs to its original position. #402 is connected to Shutter charge lever #406 with Charge lever pin #403, and thus when #402 swings, #406 follows it through the linear movement in the direction of Arrow B. At this time, Shutter charge pin #411 fixed on #406-1 charges Shutter #100. Simultaneously, Bend 406a moves Mirror charge lever #407 in the direction of Arrow C. Note that #407 functions as the shutter release delay lever in this mechanism. #407 turns Down lever #309 in the direction of Arrow D. Tip 309b of #309 engages with Tip 312a of Quick return lever #312 to be cocked. At the end of the film-advance operation, Tip 455a of Sprocket stopper lever #455 engages with Cutout 454a of #454, thereby the rotation of #454 is stopped and the film-advance operation is completed. Adjustor #418 installed on Take-up cam #401 makes a timing of movement of Shutter charge lever #406-1 so that #406-1 returns in the reverse direction of Arrow B as soon as Tip 455a engages with Cutout 454a. Depressing Shutter release button #51 in the direction of E allows Inner lever #54 to place Bend

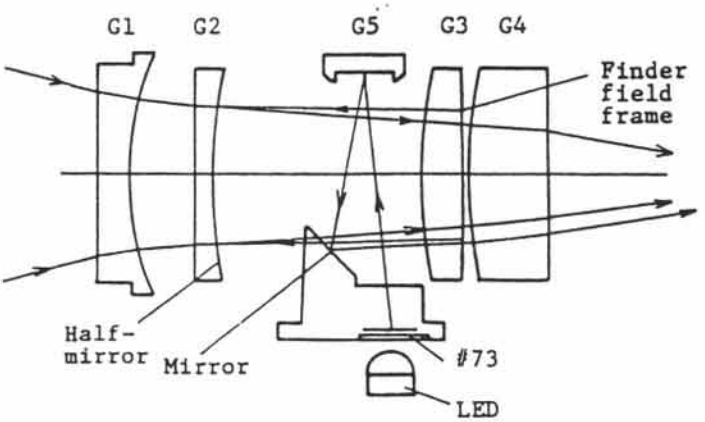
426a of Shutter release lever #426 downward. Adjusting pin #435 is installed on #426 so that Contact blade #429 comes in contact with Contact blade B when #426 moves down. It closes the whole circuit as Release button switch. As #426 goes further down, Adjusting pin #499 installed on #426 depresses Hook #319 in the direction of Arrow F. Tip 302b is disengaged from Bend 319a of #319 and then lever #302 turns in the direction of G. Pin #307 installed on #302 releases Contact A #323. #323 comes in contact with Contact B; it closes memory switch. On the other hand, Pin #318 installed on #302 moves Lever #315 to start the opening curtain's travel. After the closing curtain's travel, Shutter #100 pushes Bend 312b so that Tip 312a disengages from Tip 309b. Then #309 rotates in the reverse direction of Arrow D. Tip 309a pushes Bend 302a to turn #302 in the reverse direction of Arrow G. It allows #302 to be engaged with Hook #319 again. #309 also turns #455 in the direction of Arrow H. Tip 455a disengages from Cutout 454a. Subsequently, the film-advance operation is ready to be repeated. In the half-way of film-advance operation, shutter release is not performed, because Tip 426b of #426 is stopped with Section 406b of Shutter charge lever #406-1. When depressing Shutter release button #51, film-advance is not performed, because Tip 406c of #406 is stopped with Tip 426c of #426.

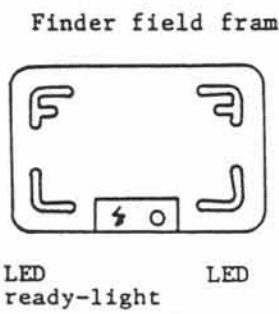
3. Viewfinder and Exposure Information

The Viewfinder of the Nikonos IV-A is an Inverted Galilean-Albada finder which consists of lenses G1, G2, G3 and G4. O-rings are provided with G1 and G4 for waterproof. The surface of G2 has the coating of half-mirror, which is so little as transparent at the center. G3 has also the coating of finder field frame. The light through G1 illuminates the finder field frame of G3, and the image of finder field frame is reflected on the half-mirror of G2. Thus the image is visible at G4.

G5 locates on the top of viewfinder and has the coating of reflex mirror. G6, which is made of transparent acryl, and its prism section have the coating of reflex mirror. Information film #73 is cemented underneath G6 and illuminated by LED. The light goes through G6 and reflects on the mirrors to reach G4.

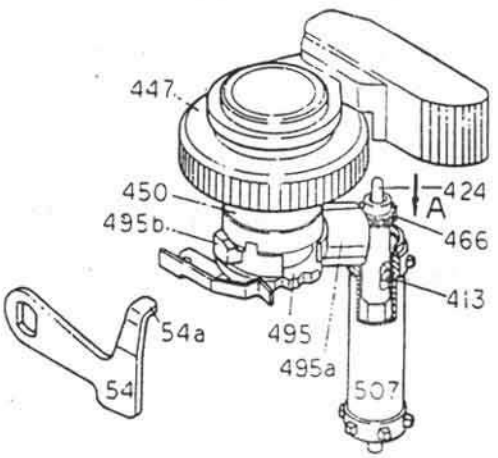
LED lights up or blinks when the shutter is set to Auto. Another LED lights up as ready-light when speed-light unit mounted. The LEDs function also as battery checker; they will not light up when the installed batteries are dead.



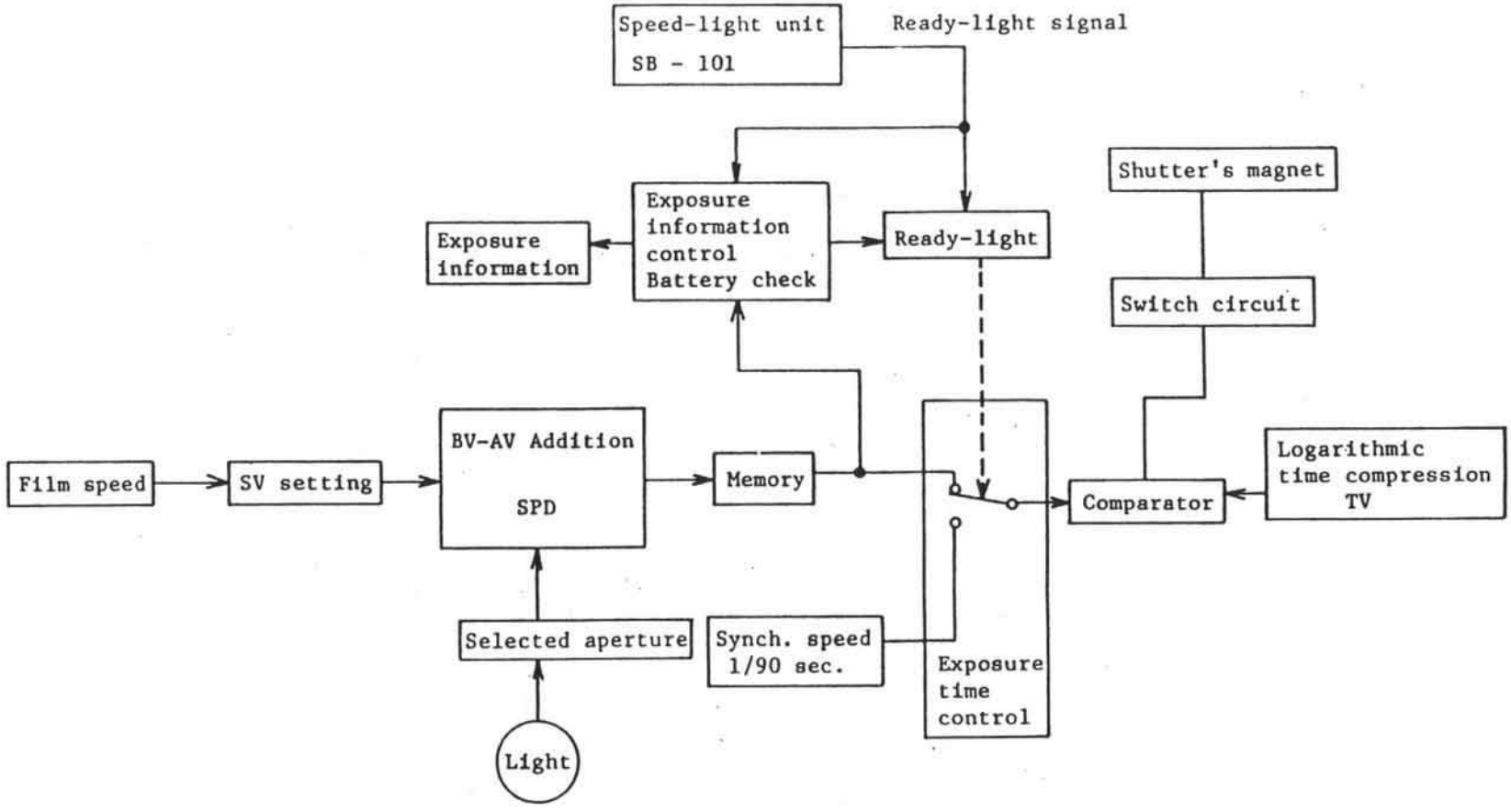


4. Rewind Film

Setting Shutter mode selector #447 to "R" turns Change-over click #495 via Change-over shaft #450. Slant section 495a of #495 pushes down Sprocket shaft #424 in the direction of Arrow, and Sprocket screw #413 disengages from the hole of Sprocket #507. Thus #507 is free to rotate. On the other hand, Projection 495b of #450 engages with Bend 54a of Inner lever #54 to prevent the erroneous shutter release during rewinding film.



Exposure Control Block Chart for the Nikonos IV



6. Exposure Control Circuit

The correct exposure time is automatically determined by film-speed, aperture and brightness. The correct exposure time (TV) appears in the following formula:

$$TV = SV + BV - AV$$

where: SV = Film-speed Value BV = Brightness Value AV = Aperture Value

This control circuit uses the stop-down measurement. Thus, when the light reaches SPD (Photodiode) through the selected aperture, it comprises BV and AV. But the film-speed is changed into the electric value (SV) after setting the ASA dial. The calculation of correct exposure time is made to provide a voltage (=TV·voltage). The meter circuit becomes ON when the shutter release button depressed halfway. It then remains on for 20 sec. after finger is taken off button. TV·voltage first flows to the exposure information circuit; when it is the shutter speed of faster than 1/1000 sec. or slower than 1/30 sec., the LED blinks for warning the out-of-control. The LED lights up in normal condition. When the shutter release button fully depressed, the exposure time control circuit becomes ON and the electromagnet of shutter is charged. Simultaneously, TV·voltage is hold at the memory capacitor. The LED turns off. As soon as the opening curtain starts to travel, the logarithmic time compression circuit provides a voltage corresponding to TV·voltage. When the voltage becomes equal to TV·voltage of the memory capacitor in the comparator, a signal goes to the switch circuit to discharge the electromagnet. Then the closing curtain starts to travel. After the shutter is released, the LED glows again. But, in case that approx. 20 sec. passes after finger is taken off the release button, the LED will not turn on.

With the own speed-light SB-101 mounted, the synch speed is automatically set at 1/90 sec. through the signal from the SB-101 when shutter mode selector is set to Auto. The LED turns off. After the SB-101 is ready for flash, the

LED-ready light lights up. In case that the meter circuit is not closed, the LED-ready light will not light up on Auto mode. But it will always light up on either M or B mode.

Both the LED and the LED-ready light will not light up when battery voltage is less than approx. 2.63 V (center value). Note that the LED-ready light turns on, with M or B mode selected.

Electric data

Battery consumption	Meter (EV12 · ASA 100 · f/5.6 · 3V)	approx. 5.5 mA
	Shutter-release (room temperature 3V)	approx. 12 mA
Battery check voltage	LED turns on (max.)	2.68 V
	LED turns off (min.)	2.58 V

II. Parts List

Parts list - P1
Subassembly List - P28

Marks in the Parts List

部品表 Parts List

9F4B—R.3043.A

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
1	ボディーB Body die-casting	1			×	
2	外箱 Outer-housing	1	FA1-2		△	
5	消音ゴム Shock absorb rubber	1		4	○	23FB#5
6	前板 Front plate	1	FA1-6		△	
10	三脚ねじ Tripod screw	1	FA1-2	8	○△	23FB#10
11	吊環 Eyelet	2	FA1-2, FA1-11		△	23FB#11-1
12	吊環スプリング Eyelet spring	2	FA1-2 FA1-11		△	23FB#12
13	シュー Accessory shoe	1	FA1-2	11	○△	
14	T指標板 Plate, shutter mode selector index	1	FA1-2	11	○△	
15	銘板 Name plate	1	FA1-2	11	○△	
16	接眼窓 Eyepiece, viewfinder	1		8	○	
17	G2受け Retainer, G2	1	FA1-2 FA1-G2	8	○△	
18	G3受け Retainer, G3	1	FA1-2 FA1-G3	8	○△	
19A 19B 29C 19D	フレーム調整座 A=0.2t B=0.1t C=0.15t D=0.05t Spacer, viewfinder A.B.C.D.	6	FA1-2	8	○△	

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9F4B－R.3043.A

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
20	G 4受け Retainer, G4	1	FA1-2	8	○△	
21	内側バヨネット Bayonet mount ring	1	FA1-6	6	○△	9F3B#21
22	プリズム遮光板 Light-shield, prism	1	FA1-G6 FA1-2		△	
23	遮光板 Washer	1		4	○	23FB#23
24	三角環 Triangular ring	2		11	○	23FB#24
25	三角環保護カバー Triangular ring protector	2		11	○	23FB#25
26	G 2遮光板 Light-shield, G2	1	FA1-2 FA1-G2	8	○△	
27A 27B	G 6調整座 A：t＝0.1 B：t＝0.05 Spacer, G6 A.B	0～1	FA1-2	8	○△	
30	シンクロ接点蓋 Synch terminal cover	1		1	○	
31	シンクロガイド環 Synch terminal guide ring	1	FA1-31 FA1-2		△	
32	シンクロピン Pin, synch terminal	3	FA1-31 FA1-2		△	
33	シンクロ端子 Synch terminal	3	FA1-31 FA1-2		△	
37A 37B 37C 37D	ワッシャ A＝0.03 B＝0.07 C＝0.05 D＝0.11 Washer A.B.C.D		FA1-6	6	○△	
38	外箱マウント Outer housing lens mount	1	FA1-2	11	○△	9F3B#38

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9F4B－R.3043.A

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
43	電池ケース Battery chamber	1	FA1-43		Δ	
44	電池キャップ Battery chamber lid	1	FA1-44		Δ	
45	電池アース接片 Earth contact, battery	1	FA1-45		Δ	
46	電池ホルダー Battery holder	1	FA1-44		Δ	
47	電池⊕接片A Battery plus contact A	1	FA1-43		Δ	23FB#47
48	電池⊕接片かしめピン Rivet, contact #47	1	FA1-43		Δ	
49	電池⊕接片B Battery plus contact B	1	FA1-43		Δ	23FB#49
51	押釦カバー Cover, shutter release button	1	FA1-51		Δ	
52	押釦レバー軸 Axle, shutter release button	1	FA1-52 FA1-2		Δ	
53	押釦レバービス Screw, axle #52	1	FA1-2	11	○Δ	
54	押釦内レバー Inner lever, shutter release button	1	FA1-52 FA1-2		Δ	
55	押釦外レバー Outer lever, shutter release button	1	FA1-58 FA1-2		Δ	
56	押釦ロック Lock knob, shutter release button	1	FA1-51	11	○Δ	
57	押釦ロック板 Plate, lock knob	1	FA1-51	11	○Δ	

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58	押釦指当 Shutter release button	1	PM1-58 FA1-2		△	
59	押釦レバーワッシャ Washer, axle #52	1	FA1-2	11	○△	
60	右前擬革 Leatherette, wind-side	1	FA1-2	11	○△	
61	左前擬革 Leatherette, rewind-side	1	FA1-2	11	○△	
62	マウント遮光モルト Light-shield sponge, lens mount	1	FA1-2	8	○△	
63	枚数計窓遮光モルト Light-shield sponge, frame counter window	1	FA1-2	8	○△	
64	外箱遮光モルト Light-shield sponge, outer housing	1	FA1-2	8	○△	
65	LED遮光モルト Light-shield sponge, LED	1	FA1-2	8	○△	
66	本体カバー遮光モルト Light-shield sponge, body cover	1	FA1-91	1	○△	
67	本体カバー遮光モルトB Light-shield sponge B, body cover	1	FA1-91	1	○△	
71	LED基板 LED base	1	FA1-72		△	
72	LEDホルダー LED holder	1	FA1-72		△	
73	表ボフィルム Information film	1	FA1-G6 FA1-2		△	
74	コード押えテープ Retaining tape. lead wires	7	FA1-2	8	○△	

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81	圧板 Pressure plate	1	FA1-81		Δ	
83	圧板蝶番軸受 Bearing, hinge #84	2		1	○	
84	圧板蝶番軸 Hinge, pressure plate	2		1	○	
85	圧板ばね Spring, pressure plate	1	FA1-81		Δ	
86	圧板かしめピン Rivet, pressure plate	2	FA1-81		Δ	
87	圧板ワッシャ Washer, pressure plate	2	FA1-81		Δ	9F3B#36
88	取扱い注意シート Caution seal	1	FA1-81		Δ	9F3B#51
91	本体カバー Body cover	1	FA1-91		Δ	
92	圧板蝶番ばね Spring, hinge #84	1		1	○	
93	圧板押え Retainer, pressure plate	1		1	○	
99	受光素子ホルダー Holder, SPD	1	FA1-99		Δ	
100	シャッター Shutter	1	FA1-100		Δ	
201	裏蓋 Camera back	1	FA1-201		Δ	
202	裏蓋ヒンジ板 Hinge, camera back	1	FA1-201	9	○Δ	

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203	裏蓋軸 Shaft, camera back	2	FA1-201	9	○△	
204	裏蓋ヒンジカバー Cover, hinge #202	1	PM1-204		△	
205	バックルA Buckle A	1	PM1-206 FA1-207		△	
206	バックルA指当 Lever, buckle A	1	PM1-206 FA1-207		△	
207	バックルB Buckle B	1	FA1-207		△	
208	バックル軸 Pin, buckle	2		10	○	
209	バックル連結軸 Shaft, buckle	1	FA1-207	10	○△	
210	裏蓋バネ Spring, camera back	4	FA1-207	9,10	○△	
211	バネガイド軸 Guide pin, spring #210	2	FA1-207	10	○△	
212	バックル爪 Buckle claw	1	FA1-207	10	○△	
213	ロック軸 Lock knob	1	FA1-213 FA1-207		△	
214	U 環 U-ring	1	FA1-213 FA1-207		△	
215	ロック軸ビス Screw, lock knob	1	FA1-207	10	○△	
216	ロック板 Plate, lock knob	1	FA1-207	10	○△	

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217	ロックバネ Spring lock knob	1	FA1-207	10	○△	
218	ガイド板 Guide, buckle claw	1	FA1-207	10	○△	
219	裏蓋擬革 Leatherette, camera back	1	FA1-201	9	○△	
220	裏蓋ヒンジ擬革 Leatherette, hinge #202	1		9	○	
221	パトローネ押えバネ Retainer, film cartridge	1	FA1-201	9	○△	
222	ワッシャー Washer, lock knob	1	FA1-207	10	○△	
223	ワッシャー Washer, buckle B	2	FA1-207	10	○△	
224	バックルバネ Spring, buckle B	1	FA1-207	10	○△	
225	ヒンジカバー座 Washer, cover #204	2	PM1-204		△	
301	駆動基板 Base plate, mirror actuating	1	FA1-6 FA1-301		△	
302	駆動レバー Mirror actuating lever	1	FA1-301 FA1-6		△	
303	駆動レバー軸 Shaft, lever #302	1	FA1-301 FA1-6		△	
304	駆動レバー軸カラー Collar, shaft #303	1	FA1-301 FA1-6		△	
305	駆動レバーバネ Spring, shaft #303	1	FA1-301 FA1-6	7	○△	

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
306	駆動レバーおもり Weight, lever #302	1	FA1-301 FA1-6		△	
307	記憶スイッチピン Pin, memory switch	1	FA1-301 FA1-6		△	
308	記憶スイッチチューブ Tube, memory switch	1	FA1-301 FA1-6		△	
309	復元レバー Mirror down lever	1	FA1-301 FA1-6		△	
310	復元バネ Spring, lever #309	1	FA1-6	7	○△	
311	復元バネビス Screw, spring #310	1	FA1-6	7	○△	
312	掛外レバー Quick-return lever	1	FA1-301 FA1-6		△	
313	掛外レバー軸 Axle, lever #312	1	FA1-301 FA1-6		△	
314	掛外レバーバネ Spring, lever #312	1	FA1-301 FA1-6	7	○△	
315	シャッタースタートレバー Lever, shutter release	1	FA1-6	7	○△	
316	シャッタースタートレバー軸 Axle, lever #315	1	FA1-6	7	○△	
317	シャッタースタートレバー軸カラー Collar, axle #316	1	FA1-301 FA1-6		△	
318	シャッタースタートピン Pin, shutter release	1	FA1-301 FA1-6		△	
319	レリーズカギレバー Hook, shutter release	1	FA1-301 FA1-6		△	

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
320	レリーズカギレバーバネ Spring, hook #319	1	FA1-301 FA1-6	7	○△	
321	復元レバーゴム Rubber, lever #309	1	FA1-301 FA1-6	7	○△	
322	緩衝ゴムA Shock absorb rubber A	1	FA1-6	7	○△	
323	記憶スイッチ接片A Contact A, memory switch	1	FA1-323 FA1-6		△	
324	記憶スイッチ接片B Contact B, memory switch	1	FA1-323 FA1-6		△	
325	記憶スイッチ座 Base, memory switch	1	FA1-323 FA1-6		△	
326	記憶スイッチ絶縁板 Insulator, memory switch	1	FA1-323 FA1-6		△	
327	遮光シート Light-shield seal	1		7	○	
328	緩衝ゴムB Shock absorb rubber B	1	FA1-6	7	○△	
401	巻上カム Take-up cam	1	FA1-401		△	
402	チャージ伝達レバー Charge transmission lever	1	FA1-406		△	23FB#402
403	チャージレバーピン Charge lever pin	1	FA1-406		△	23FB#403
404	巻上カムローラー Film-advance cam roller	1	FA1-406		△	23FB#404
405	スプール軸受 Spool bearing	1	FA1-405		△	23FB#405

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
406-1	シャッターチャージレバー Shutter charge lever	1	FA1-406		△	
407	駆動部チャージレバー Mirror charge lever	1		4	○	23FB#407
408	チャージ伝達レバー軸 Charge transmission lever shaft	1		4	○	23FB#408
409	駆動部チャージレバー軸 Mirror charge lever shaft	1		4	○	23FB#409
410	カムローラー用ピン Cam roller pin	1	FA1-406		△	23FB#410
411-1	シャッターチャージピン Shutter charge pin	1	FA1-406		△	23FB#411-1
412	シャッターチャージレバー軸 Shutter charge lever shaft	1		4	○	23FB#412
413	スプロケットビス Sprocket screw	1		4	○	23FB#413
415	巻上レバービス擬革 Leatherette, film-advance lever	1		5	○	
416	スプロケットカラー Sprocket collar	1		4	○	
417	チャージ伝達レバーカラー Charge transmission lever collar	1	FA1-406		△	23FB#417
418	巻上カム調整板 Adjuster, take-up cam	1		4	○	
419	スプロケットバネ Sprocket spring	1		4	○	23FB#419-1
420	巻上カム調整ピン Adjusting pin, take-up cam	1	FA1-401		△	

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
421	巻上軸止めワッシャー Washer, take-up shaft	1		4	○	
422	スプール内筒 Spool internal tube	1	FA1-506		△	23FB#422
423	巻上カム止めネジ Take-up cam set screw	1		4	○	23FB#423
424	スプロケット軸 Sprocket shaft	1		4	○	
425	スプール軸 Spool shaft	1	FA2-425		△	23FB#425
426	レリーズレバー Shutter release lever	1	FA1-426		△	
427	レリーズレバーバネ掛け Release lever spring stud	1		6	○	23FB#427
428	レリーズレバーバネ Release lever spring	1		6	○	
429	半押スイッチA Contact blade A	1	FA1-432		△	23FB#429
430	半押スイッチB Contact blade B	1	FA1-432		△	23FB#430
431	半押スイッチ絶縁ワッシャー Insulating washer	1	FA1-432		△	23FB#431
432	半押スイッチ絶縁ブッシュ Insulating bush	1	FA1-432		△	23FB#432
433	レリーズレバービス Release lever screw	2		6	○	
434	半押スイッチかしめ軸 Release button switch calking shaft	1	FA1-432		△	23FB#434

部品番号 Part No.	名称 Name	1台当数量 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
435	半押スイッチ調整ピン Adjusting pin, release button switch	1	FA1-426		△	
436	半押スイッチ絶縁チューブ Insulating tube, release button switch	1	FA1-426		△	
437	レリーズレバー受け Acceptor, shutter release lever	1		4	○	
438	巻上レバービス Screw, film-advance lever	1	FA2-451	5	○△	
439	巻上レバー指当 Film-advance lever knob	1	FA1-441 FA2-451		△	
440	指当回転軸 Lever knob spindle	1	FA1-441 FA2-451		△	23FB#440
441	巻上レバー Film-advance lever	1	FA1-441 FA2-451		△	
444	巻上レバーバネ Film-advance lever spring	1	FA2-451	5	○△	
445	巻上固定軸 Film-advance fix shaft	1	FA2-451		△	
446	巻上軸 Film-advance shaft	1	FA1-446		△	
447	T切換ダイヤル Shutter mode selector	1	FA1-447		△	
448	T切換連結レバー Change-over coupling knob	1	FA2-451		△	23FB#448
449	T切換連結レバー軸 Change-over coupling shaft	1	FA2-451		△	23FB#449
450	T切換軸 Change-over shaft	1	FA1-447		△	

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
451	巻上底板 Film-advance base plate	1	FA2-451		Δ	
452	巻上ギア Film-advance gear	1	FA2-451	5	○Δ	23FB#452-1
453	スプロアイドルギア Sprocket idle gear	1	FA2-451		Δ	23FB#453
454	スプロ回転制限 Sprocket stopper	1	FA2-451		Δ	23FB#454
455	スプロ回転制限レバー Sprocket stopper lever	1	FA2-451		Δ	
456	スプロ回転制限カラー Stopper lever collar	1	FA2-451		Δ	23FB#456
457	スプロ回転制限軸 Sprocket stopper shaft	1	FA2-451		Δ	23FB#457
458	スプロ回転制限バネ Sprocket stopper spring	1	FA2-451		Δ	
460	クラッチカム Clutch cam	1	FA2-451	5	○Δ	23FB#460
461	巻上カムカバー Film-advance cam cover	1	FA2-451	5	○Δ	23FB#461
462	巻上カムコロ Film-advance cam roller	3	FA2-451	5	○Δ	23FB#462
463	巻上カムコロバネ Cam roller spring	3	FA2-451	5	○Δ	23FB#463
464	逆転防止バネ Reverse stopper spring	1	FA2-451	5	○Δ	23FB#464
465	スプール上軸受け Spool upper bearing	1	FA2-451		Δ	23FB#465

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
466	スプロケットギア Sprocket gear	1		4	○	
467	スプールギア Spool gear	1	FA2-425		△	23FB#467
468	スプロアイドル軸 Sprocket idle shaft	1	FA2-451		△	23FB#468
469	戻り制限爪軸 Reverse stopper claw shaft	1	FA2-451		△	23FB#469
470	巻上逆転防止爪 Reverse stopper claw	1	FA2-451	5	○△	23FB#470
471	枚数計ラチェット Frame counter ratchet	1	FA2-451 FA1-471		△	23FB#471
472	枚数計指標 Frame counter index plate	1	FA2-451	5	○△	23FB#472
474	枚数計 Frame counter	1	FA2-451 FA1-471		△	23FB#474
475	枚数計バネ Frame counter spring	1	FA2-451	5	○△	23FB#475
476	枚数計板バネ Frame counter plate spring	1	FA2-451		△	23FB#476
477	枚数計ギア Frame counter gear	1	FA2-451	5	○△	23FB#477
478	枚数計軸ビス Frame counter shaft screw	1	FA2-451	5	○△	23FB#478
479	枚数計軸 Frame counter shaft	1	FA2-451		△	23FB#479
480	枚数計板バネ軸 Plate screw shaft	1	FA2-451		△	23FB#480

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
485	空撃スイッチA Blank shot switch A	1	FA2-451 FA1-492		Δ	23FB#485
486	空撃スイッチB Blank shot switch B	1	FA2-451 FA1-492		Δ	23FB#486
487	空撃スイッチ絶縁板 Switch insulator	4	FA2-451 FA1-492		Δ	23FB#487
489	クリックバネ Click spring	1	FA2-451		Δ	FA2-451
490	レディライトスイッチA Ready light switch A	1	FA2-451 FA1-492		Δ	
491	レディライトスイッチB Ready light switch B	1	FA2-451 FA1-492		Δ	
492	レディライトスイッチ取付座 Ready light switch base	1	FA2-451 FA1-492		Δ	
493	レディライトスイッチ絶縁チューブ Switch insulator	1	FA2-451 FA1-492		Δ	
495	T切換クリック板 Change-over click	1	FA2-451		Δ	
499	レリーズ調整ピン Adjusting pin, shutter release lever	1	FA1-426		Δ	
503	スプールフリクションバネ Spool friction spring	1	FA2-425	4	○Δ	23FB#503
504	スプールフリクション板 Friction ring	2	FA2-425	4	○Δ	23FB#504
505	スプールフリクションバネ受け Friction spring shoe ring	1	FA2-425	4	○Δ	23FB#505
506	スプール Spool	1	FA1-506		Δ	23FB#506

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
507	スプロケット Sprocket	1		4	○	23FB#507
511	プリント板取付軸A Axle A, printed circuit board	1		5	○	
512	プリント板取付軸B Axle B, printed circuit board	2		6	○	
521	ボール保持筒 Ball lace	1	FA1-405		△	23FB#521
522	ボールケース Ball case	1	FA1-405		△	23FB#522
523	ボール Steel ball	8	FA1-405		△	23FB#523
524	レバークリックバネ Lever click spring	1	FA1-441 FA2-451	5	○△	23FB#524
527	連結板 Connecting plate	1	FA2-451		△	23FB#527
528	コード押え板 Retaining plate, lead wires	1		3	○	
652	巻戻軸 Rewind shaft	1	FA1-652		△	
653	巻戻ノブ Rewind knob	1		2	○	23FB#653
654	巻戻レバー Rewind lever	1	FA1-654		△	23FB#654
655	巻戻クラッチ筒 Rewind clutch tube	1	FA1-659		△	
656	巻戻レバー受バネ Lever spring shoe	1		2	○	23FB#656

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
657	巻戻つまみ Crank knob	1	FA1-654		Δ	23FB#657
658	巻戻つまみ軸 Crank shaft	1	FA1-654		Δ	23FB#658
659	巻戻フォーク軸 Rewind fork axle	1	FA1-659		Δ	
660	巻戻フォーク Rewind fork	1		6	○	
661	巻戻ノブ取付ネジ Setscrew, rewind knob	1		2	○	23FB#661
662	巻戻軸ワッシャ Rewind shaft washer	2		2	○	
663	巻戻Oリング板 Washer, rewind shaft O-ring	1		2	○	
664	巻戻Oリング板止め Stopper, rewind shaft O-ring	1		2	○	
667	ASA 目盛軸 ASA dial shaft	1		2	○	
668	ASA 目盛環 ASA dial	1		2	○	
669	ASA クリック板 Click plate, ASA dial	1		11	○	
670	ASA 目盛バネ Spring, ASA dial	1		2	○	
671	ASA 連動ワッシャ Coupling washer, ASA dial	1	FA1-683		Δ	
672	ASA ブラシ取付台 ASA brush mount	1	FA1-683		Δ	23FB#672

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
673	ASA 目盛板 ASA scale ring	1		2	○	
674	ASA ブラシ ASA brush	1	FA1-683		△	23FB#674
675	ASA 目盛軸止め Stopper, ASA dial shaft	1		2	○	
676	巻戻クラッチ座金 Washer, rewind clutch	1		2	○	9F3B#367
683	ASA 基板 ASA base plate	1	FA1-683		△	23FB#683
701	IC プリント板 IC printed circuit board	1	FA1-701		△	
702	LED プリント板 LED printed circuit board	1	FA1-72		△	
703	SBC プリント板 SPD printed circuit board	1	FA1-701 FA1-708		△	
704	制御用 IC IC, shutter control	1	FA1-701		△	
705	表示用 IC チップ IC, exposure information	1	FA1-701		△	
706	IC パッケージ IC package	1	FA1-701		△	
708	SBC SPD	1	FA1-708		△	
709	LED LED	2	FA1-72		△	
710	ASAγ 調整抵抗 Resistor, ASAγ, adjusting	1	FA1-701	3	○△	

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
711	Auto レベル調整抵抗 Resistor, Auto level adjusting	1	FA1-701	3	○△	
712	1/90 調整抵抗 Resistor, shutter speed 1/90 sec adjusting	1	FA1-701	3	○△	
713	バッテリーチェック調整抵抗 Resistor, battery check adjusting	1	FA1-701	3	○△	
714	PNP トランジスタ Transistor (PNP)	2	FA1-701		△	
715	NPN トランジスタ Transistor (NPN)	2	FA1-701		△	
716	ツェナーダイオード Zenor-diode	1	FA1-701		△	
717	シリコンダイオード Silicon-diode	1	FA1-701		△	
719A	セラミック蓋 Ceramic lid	1	FA1-701		△	
719B	接着用樹脂シート Adhesive seat	1	FA1-701		△	
720	セラミックコンデンサ Ceramic condensor	1	FA1-701		△	
721	半導体コンデンサ Condensor	1	FA1-701		△	
722	積層セラミックコンデンサ Ceramic condensor	2	FA1-701		△	
723	メモリーコンデンサ Memory capacitor	1	FA1-701		△	
724	ディップタンタルコンデンサ Tantalum condensor	2	FA1-701		△	

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
725	電源コンデンサ Power condensor	1	FA1-701		Δ	
726	発振防止コンデンサ Oscillation preventing condensor	1	FA1-701		Δ	
727	半押タイマーコンデンサ Power hold condensor	1	FA1-701		Δ	
728	位相補償コンデンサ Phase compensation condensor	1	FA1-701		Δ	
729	保護ダイオード Protector diode	1	FA1-701		Δ	
730	金属皮膜抵抗 2.2 KΩ Metal surface resistor 2.2 kΩ	1	FA1-701		Δ	
731	金属皮膜抵抗 4.32 KΩ Metal surface resistor 4.32 kΩ	1	FA1-701		Δ	
732	炭素皮膜抵抗 100 Ω Carbon surface resistor 100 Ω	1	FA1-701		Δ	
733	炭素皮膜抵抗 180 Ω Carbon surface resistor 180 Ω	1	FA1-701		Δ	
734	炭素皮膜抵抗 470 Ω Carbon surface resistor 470 Ω	1	FA1-701		Δ	
735	炭素皮膜抵抗 1 KΩ Carbon surface resistor 1 kΩ	1	FA1-701		Δ	
736	炭素皮膜抵抗 2.7 KΩ Carbon surface resistor 2.7 kΩ	1	FA1-701		Δ	
737	炭素皮膜抵抗 22 KΩ Carbon surface resistor 22 kΩ	1	FA1-701		Δ	
738	炭素皮膜抵抗 22 KΩ Carbon surface resistor 22 kΩ	1	FA1-701		Δ	

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
739	炭素皮膜抵抗 100 KΩ Carbon surface resistor 100 kΩ	1	FA1-701		Δ	
740	炭素皮膜抵抗 100 KΩ Carbon surface resistor 100 kΩ	1	FA1-701		Δ	
741	炭素皮膜抵抗 120 KΩ Carbon surface resistor 120 kΩ	1	FA1-701		Δ	
742	炭素皮膜抵抗 150 KΩ Carbon surface resistor 150 kΩ	3	FA1-701		Δ	
743	炭素皮膜抵抗 150 KΩ Carbon surface resistor 150 kΩ	1	FA1-701		Δ	
744	炭素皮膜抵抗 180 KΩ Carbon surface resistor 180 kΩ	1	FA1-701		Δ	
745	炭素皮膜抵抗 220 KΩ Carbon surface resistor 220 kΩ	6	FA1-701		Δ	
746	炭素皮膜抵抗 220 KΩ Carbon surface resistor 220 kΩ	3	FA1-701		Δ	
747	炭素皮膜抵抗 2.2 MΩ Carbon surface resistor 2.2 MΩ	1	FA1-701		Δ	
750	SBC コードA Lead wire A, SPD	1	FA1-708 FA1-701		Δ	
751	SBC コードB Lead wire B, SPD	1	FA1-708 FA1-701		Δ	
752	アースコードA Lead wire, earth	1	FA1-45		Δ	
753	電源コード Lead wire, power	1	FA1-43		Δ	
754	空撃スイッチコード Lead wire, blank shot switch	1	FA1-492 FA2-451		Δ	

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
755	表示LED コードA Lead wire A, LED	1	FA1-72		Δ	
756	表示LED コードB Lead wire B, LED	1	FA1-72		Δ	
757	レディーLED コードA Lead wire A, Ready-light LED	1	FA1-72		Δ	
758	レディーLED コードB Lead wire B, Ready-light LED	1	FA1-72		Δ	
759	ASA コードA Lead wire A, ASA base plate	1	FA1-683		Δ	
760	ASA コードB Lead wire B, ASA base plate	1	FA1-683		Δ	
761	記憶スイッチコードA Lead wire A, memory switch	1	FA1-323		Δ	
762	記憶スイッチコードB Lead wire B, memory switch	1	FA1-323		Δ	
763	トリガスイッチコードA Lead wire A, trigger switch	1	FA1-100		Δ	
764	トリガスイッチコードB Lead wire B, trigger switch	1	FA1-100		Δ	
765	Mgコード A Lead wire A, shutter electromagnet	1	FA1-100		Δ	
766	Mgコード B Lead wire B, shutter electromagnet	1	FA1-100		Δ	
767	アースコードB Lead wire B, earth	1	FA1-100		Δ	
768	シンクロコードA Lead wire A, synch terminal	1	FA1-100		Δ	

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部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
769	半押スイッチコード Lead wire, release button switch	1	FA1-100		Δ	
770	レディーコード Lead wire, ready-light	1	FA1-31 FA1-2		Δ	
771	シンクロコードB Lead wire B, synch terminal	1	FA1-31 FA1-2		Δ	
772	アースコードC Lead wire C, earth	1	FA1-31 FA1-2		Δ	
773	レディースイッチコードA Lead wire A, ready-light switch	1	FA1-492 FA2-451		Δ	
774	レディースイッチコードB Lead wire B, ready-light switch	1	FA1-492 FA2-451		Δ	
775	ジャンパーコード Jumper cord	1	FA1-701		Δ	
776	外箱アースコード Lead wire, outer housing earth	1	FA1-31 FA1-2		Δ	
801	G1リング O-ring G1	1	FA1-2	8	OΔ	
802	G3リング O-ring G3	1	FA1-2	8	OΔ	
803	巻上軸リング O-ring, film-advance shaft	2	FA1-2	11	OΔ	
804	枚数計窓リング O-ring, frame counter window	1	FA1-2	11	OΔ	
805	Tダイアルリング O-ring, shutter mode selector	1		2	O	
807	電池キャップリング O-ring, battery chamber	1		1	O	

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
808	巻戻軸リング O-ring, rewind shaft	1		2	○	
809	マウントリング O-ring, outer housing lens mount	1	FA1-2	11	○△	
810	シンクロソケットリング O-ring, synch socket	2		1,2	○	
811	シンクロコネクターリング O-ring, synch terminal	1	FA1-2	8	○△	
812	裏蓋リング O-ring, camera back	1		9	○	
821	小ネジ Screw	1		6	○	A1-17030BS
822	小ネジ Screw	5		6,11	○	A1-17030SX
823	小ネジ Screw	2		6,7	○	B1-17035BB
824	小ネジ Screw	7	FA1-6 FA1-201	3,7,9	○△	A1-20025SX 9F3B#642
825	小ネジ Screw	9		3,5,6	○	A1-20030SX 9F3B#622
826	小ネジ Screw	2		6	○	A1-20030SX 23FB#806
827	小ネジ Screw	4		3,11	○	
828	小ネジ Screw	3		9	○	B1-20040SX
829	小ネジ Screw	4	FA1-2	4,11	○△	A2-20022SX 9F3B#635

部品表 Parts List

9F4B—R.3043.A

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
830	小ネジ Screw	4	FA1-2	11	○△	A2-20040SX 9F3B#629
831	小ネジ Screw	4		1	○	A2-17040BS
832	小ネジ Screw	2		7	○	B1-20030BB
833	小ネジ Screw	2		1	○	
834	小ネジ Screw	1		1	○	
835	小ネジ Screw	1	FA2-451	5	○△	
836	バヨネット止めビス Screw, bayonet mount ring	4		6	○	
837	タップタイトネジ Tapping screw	2		3	○	
838	タップタイトネジ Tapping screw	1	FA1-51	11	○△	
841	すりわり付き止めネジ Cotter screw	1	FA1-2	8	○△	
846	スプリングピン Spring cotter	1	FA1-213 FA1-207	10	○△	P3-10090SX
847	スプリングピン Spring cotter	1	FA1-652	2	○△	
848	スプリングピン Spring cotter	2	FA1-2	11	○△	P3-16070SX
849	スプリングピン Spring cotter	1	FA1-446 FA2-451	5	○△	P3-16100SX

部品表 Parts List

9F4B—R.3043.A

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
851	E型止め輪 E-snap ring	1	FA2-451	5	○△	23FB#866
853	E型止め輪 E-snap ring	2		10	○	
855	スプリングピン Spring cotter	1		8	○	
856	プリント板止めリング Snap ring, printed circuit board	2		3	○	
857	巻上軸止めリング Snap ring, film-advance shaft	1	FA2-451	5	○△	
862	スプロケットバネ座金 Spring washer, sprocket	1		4	○	
G1	レンズ Lens	1	FA1-2	8	○△	
G2	レンズ Lens	1	FA1-G2 FA1-2	8	○△	
G3	レンズ Lens	1	FA1-G3 FA1-2	8	○△	
G4	レンズ Lens	1	FA1-2	8	○△	
G5	ミラー Mirror	1	FA1-2	8	○△	
G6	プリズム Prism	1	FA1-G6 FA1-2		△	

部品表 Parts List

9F4B—R.3043.A

部品番号 Part No.	名称 Name	1台個数 Pcs. per Unit	部組品No. Sub-assembly No.	参照図番 Reference Fig. No.	販売区分 Term of Sale	備考 Remarks
G7	レンズ Lens	1	FA1-99		Δ	
G8	レンズ Lens	1	FA1-99		Δ	
G9	駒数計窓 Frame counter window	1	FA1-2	11	○Δ	

部組品一覧表 Subassembly List

9F4B－R.3043.A

部組品番号 Subassembly No.	名称 Name	1台分個数 Pcs. per Unit	構成部品番号 No. of Constituent Parts	参照図番 Reference Fig. No.	備考 Remarks
FA1-2	外箱 Outer housing	1	2, 10, 13, 14, 15, 19A ~ D, 20, 27A,B, 38, 53, 59, 60, 61, 62, 63, 64, 65, 74x2, 801, 802, 803, 804, 809, 811, 829x3, 830x4, 841, 848x2, 855, G1, G4, G5, G9, FA1-11, FA1-31, FA1-52, PM1-58, FA1-G6, FA1-G2, FA1-G3	8, 11	
FA1-6	前板 Front plate unit	1	6, 21, 37, 310, 311, 315, 316, 322, 328, 823, 824, FA1-301, FA1-323	6, 7	
FA1-11	出環 Eyelet	2	11, 12	11	23FB-A1A
FA1-31	シンクロガイド環 Synch terminal guide ring	1	31, 32x3, 33x3, 770, 771, 772, 776	8	
FA1-43	電池ケース Battery chamber	1	43, 47, 48, 49, 753	6	
FA1-44	電池キャップ Battery chamber lid	1	44, 46	1	
FA1-45	電池アース接片 Battery earth contact	1	45, 752	6	
FA1-51	押釦カバー Shutter release button cover	1	51, 56, 57, 838	11	
FA1-52	押釦レバー軸 Shutter release button axle	1	52, 54	11	
FA1-72	LED ホルダー LED holder	1	71, 72, 702, 709x2, 755, 756, 757, 758	3	
FA1-81	圧板 Pressure plate	1	81, 85, 86x2, 87x2, 88	1	

部組品一覧表 Subassembly List

9F4B－R.3043.A

部組品番号 Subassembly No.	名称 Name	1台分個数 Pcs. per Unit	構成部品番号 No. of Constituent Parts	参照図番 Reference Fig. No.	備考 Remarks
FA1-91	本体カバー Body cover	1	66, 67, 91	1	
FA1-99	受光素子ホルダー SPD holder	1	99, G7, G8	7	
FA1-100	シャッター Shutter	1	100, 763, 764, 765, 766, 767, 768, 769	6	
FA1-201	裏蓋 Camera back	1	201, 202, 203x2, 219, 221, 824x2	9	
FA1-207	バックルB Buckle B	1	207, 209, 210x2, 211x2, 212, 215, 216, 217, 218, 222, 223x2, 224, PM1-206, FA1-213	10	
FA1-213	ロック軸 Lock knob	1	213, 214, 846	10	
FA1-301	駆動板板 Mirror actuating unit	1	301, 302, 303, 304, 305, 306, 307, 308, 309, 312, 313, 314, 317, 318, 319, 320, 321	7	
FA1-323	記憶スイッチ Memory switch	1	323, 324, 325, 326x2, 761, 762	7	
FA1-401	巻上カム Take-up cam	1	401, 420	4	
FA1-405	スプール軸受 Spool shaft bearing	1	405, 521, 522, 523	4	23FB-A6
FA1-406	シャッターチャージレバー Shutter charge lever	1	402, 403, 404, 406, 410, 411, 417	4	
FA1-425	スプール軸 Spool shaft	1	425, 467	4	
FA1-426	レリーズレバー Shutter release lever	1	426, 435, 436, 499	6	

部組品一覧表 Subassembly List

9F4B－R.3043.A

部組品番号 Subassembly No.	名称 Name	1台分個数 Pcs. per Unit	構成部品番号 No. of Constituent Parts	参照図番 Reference Fig. No.	備考 Remarks
FA1-432	押釦スイッチ Release button switch	1	429, 430, 431, 432, 434	6	23FB-A10
FA1-441	巻上レバー Film-advance lever	1	439, 440, 441, 524	5	
FA1-446	巻上軸 Film-advance shaft	1	446, 849	5	
FA1-447	Tダイアル Shutter mode selector	1	447, 450	2	
FA1-471	枚数計ラチェット Frame counter ratchet	1	471, 474	5	23FB-D4
FA1-492	空撮スイッチ Blank shot switch	1	485, 486, 487, 490, 491, 492, 493, 754, 773, 774	5	
FA1-506	スプール Spool	1	422, 506	4	
FA1-652	巻戻軸 Rewind shaft	1	652, 847	2	
FA1-654	巻戻レバー Rewind lever	1	654, 657, 658	2	23FB-A22A
FA1-659	巻戻フォーク軸 Rewind fork axle	1	655, 659	6	
FA1-683	ASA 底板 ASA base plate	1	671, 672, 674, 683, 759, 760	6	
FA1-701	プリント板 Printed circuit board	1	701, 704, 705, 706, 710, 711, 712, 713, 714x2, 715x2, 716, 717, 719A,B, 720, 721, 722x2, 723, 724x2, 725, 726, 727, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742x3, 743, 744, 745x6, 746x3, 747, 775, 728, 729, FA1-708	3	

部組品一覧表 Subassembly List

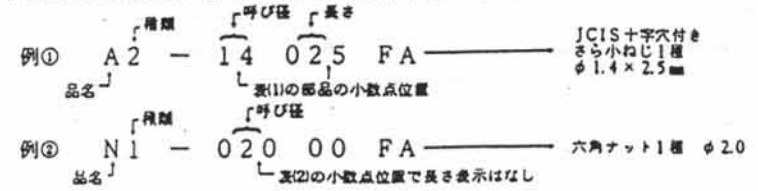
9F4B－R.3043.A

部組品番号 Subassembly No.	名称 Name	1台分個数 Pcs. per Unit	構成部品番号 No. of Constituent Parts	参照図番 Reference Fig. No.	備考 Remarks
FA1-708	SBC SPD	1	703, 708, 750, 751	3	
FA1-G2	G 2組 G2	1	17, 26, G2	8	
FA1-G3	G 3組 G3	1	18, G3	8	
FA1-G6	プリズム Prism	1	22, 73, G6	8	
FA2-425	スプール軸部 Spool shaft	1	503, 504x2, 505, FA1-425	4	23FB-A5
FA2-451	巻上床板部 Film-advance unit	1	438, 444, 445, 448, 449, 451, 452, 453, 454, 457, 458, 460, 461, 462x3, 463x3, 464, 465, 468, 469, 470, 472, 475, 476, 477, 478, 479, 480, 489, 495, 527, 455, 456, 835, 851, 857, FA1-441, FA1-446, FA1-471, FA1-492	5	
PM1-58	押釦指当 Shutter release button	1	55, 58	11	
PM1-204	ヒンジカバー Camera back hinge cover	1	204, 225x2	9	
PM1-206	バックルA指当 Buckle A lever	1	205, 206	10	

記号説明 MARKS IN THE PARTS LIST

(1) 機 械 標 準 品

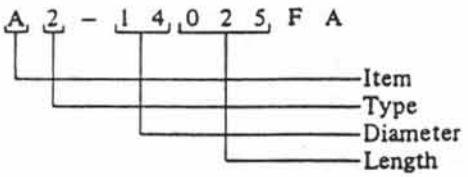
下の表に示す機械標準品の部品番号は品名、種類、呼び径、長さを示しています。



(1) Standard mechanical parts

Reference Number in the Parts List

A. Screw · pin



B. Nut · Washer · Snap ring

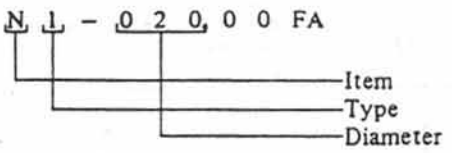


表 1

品名 Item		種類 Type		品名 Item		種類 Type	
JCIS 十字穴付き小ねじ 1種 Cross-point screw 1	A	なべ Pan	1	すりわり付き止ねじ Splitted set screw	K	丸先 Round point	1
		さら Countersunk	2			とがり先 Cone point	2
		丸さら Oval	3			くぼみ先 Half point	3
JCIS 十字穴付き小ねじ 3種 〃 screw 3	B	なべ Pan	1	六角穴付き止ねじ Hexagon socket head set screw	L	くぼみ先 Half point	3
		さら Countersunk	2	六角穴付きボルト Hexagon socket head bolt	M		1
		丸さら Oval	3	平行ピン Straight pin	P		1
十字穴付き小ねじ 〃 Cross-point screw	C	なべ Pan	1	テーパピン Taper pin			2
		さら Countersunk	2	スプリングピン Spring cotter		一般用 Normal	3
		丸さら Oval	3			軽荷重用 Light	4
		トラス Truss	4				
十字穴付き タッピンねじB型 1種 Cross-point tapped screw B1	D	なべ Pan	1				
		さら Countersunk	2				
		丸さら Oval	3				
十字穴付き タッピンねじB型 3種 〃 screw B3	E	なべ Pan	1				
		さら Countersunk	2				
		丸さら Oval	3				
十字穴付き タッピンねじ 2種 〃 screw 2	F	なべ Pan	1				
		さら Countersunk	2				
		丸さら Oval	3				

表 2

品名 Item		種類 Type	
六角ナット Hexagon nut	N	1種 1	1
		3種 3	3
平座金 Washer	R	小形丸	1
		みがき丸	2
ばね座金 Spring washer			5
E型止め輪 E-snap ring	S		1

III. Drawing

Drawing of Complete Camera Section - - - - - - - - - - - - - F 1

Pressure Plate and Battery Chamber - - - - - - - - - - - - - F 2

Shutter Mode Selector and Rewind Knob - - - - - - - - - - - F 4

IC Printed Circuit Board and LED - - - - - - - - - - - - - - F 6

Take-up Cam, Shutter Charge lever,
Spool and Sprocket - F 8

Film-advance Base Plate - - - - - - - - - - - - - - - - - - F 10

Shutter, Release Button SW and Battery Chamber - - - - - - - F 12

Front Plate Unit - F 14

Viewfinder - F 16

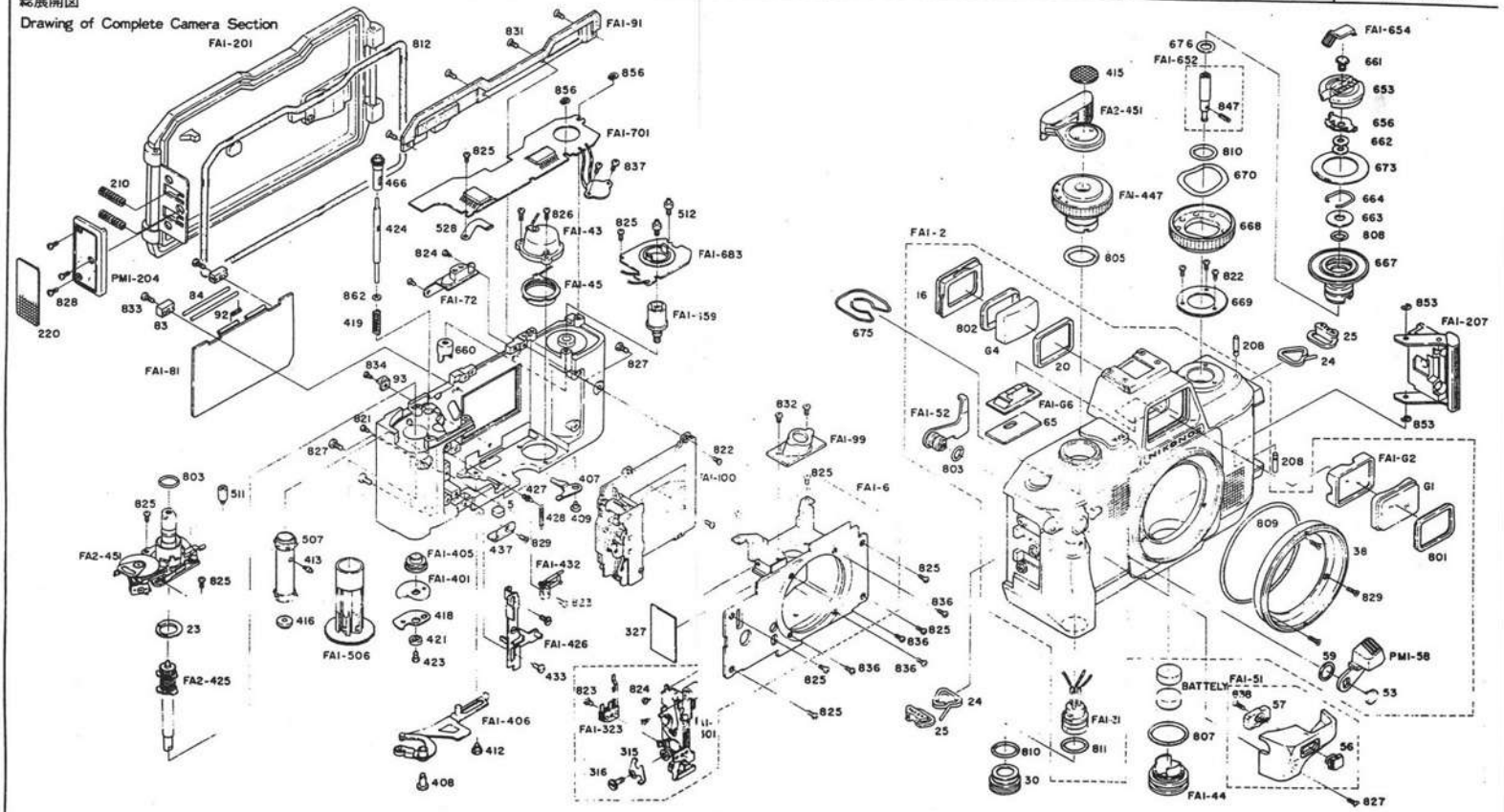
Camera Back - F 18

Buckle - F 20

Outer Housing - F 22

F0

総展開図
Drawing of Complete Camera Section



圧板・バッテリーケース Pressure Plate and Battery Chamber

9F4B－R.3043. A

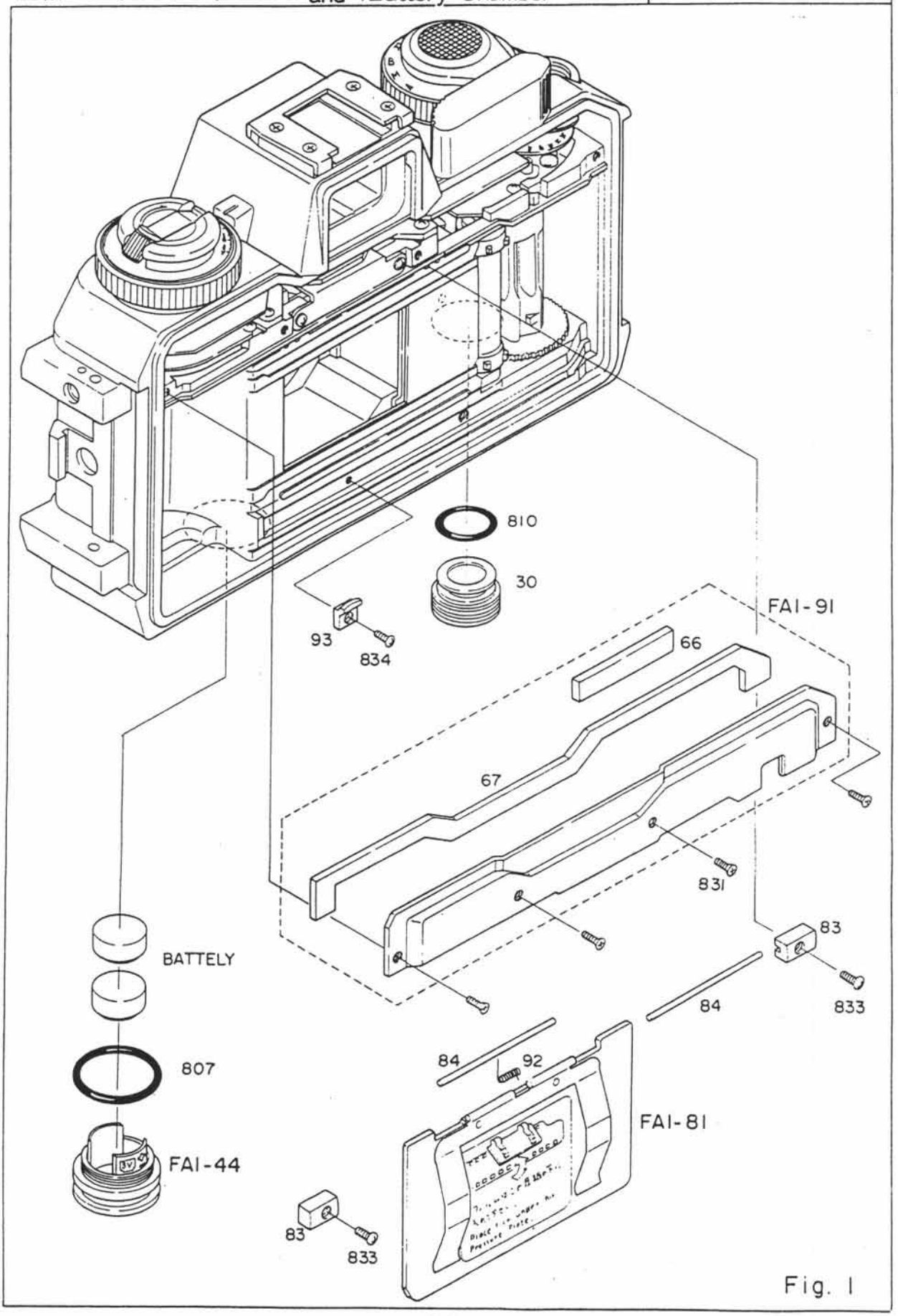


Fig. 1

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
30	シンクロ接点蓋 Synch terminal cover		
66	本体カバー遮光モルト Leathere, wind-side		
67	本体カバー遮光モルトB Light-shield B, body cover		
83	圧板蝶番軸受 Bearing, hinge #84		
84	圧板蝶番軸 Hinge, pressure plate		
92	圧板蝶番バネ Spring, hinge #84		
93	圧板押え Retainer, pressure plate		
807	電池キャップリング O-ring, battery chamber		
810	シンクロソケットリング O-ring, synch socket		
831	小ネジ Screw		
833	小ネジ Screw		
834	小ネジ Screw		
FA1-44	電池キャップ Battery chamber lid		
FA1-81	圧　板 Pressure plate		
FA1-91	本体カバー Body cover		

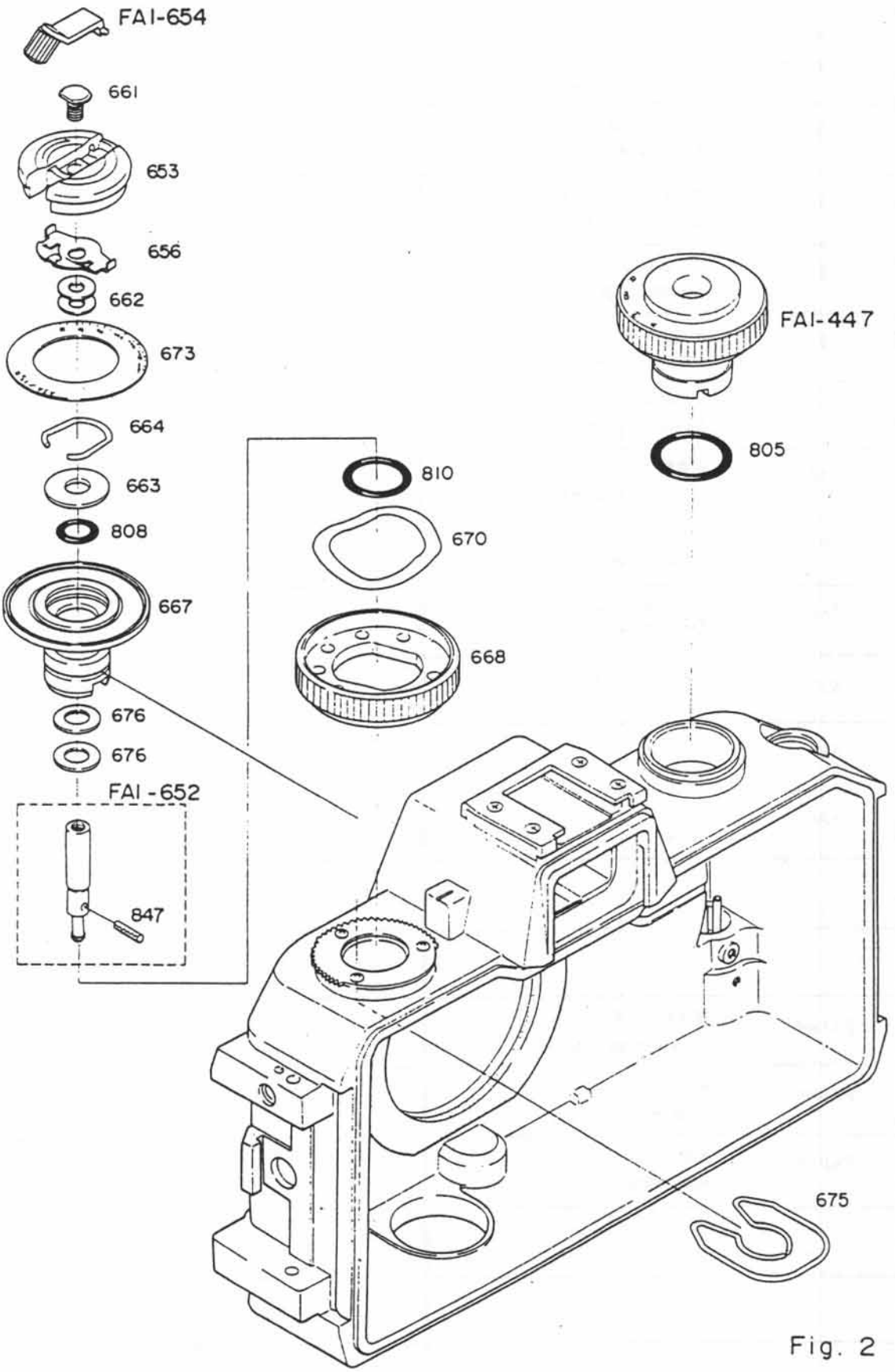

FAI-654
661
653
656
662
673
664
663
808
667
676
676
FAI-652
847
810
670
668
FAI-447
805
675

Fig. 2

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
653	巻戻ノブ Rewind knob 1K 083-042	FA1-447	Tダイアル Shutter mode selector
656	巻戻レバー受バネ Lever spring shoe 1K 240 330	FA1-652	巻戻軸 Rewind shaft
661	巻戻ノブ取付ネジ Knob set screw	FA1-654	巻戻レバー Rewind lever
662	巻戻軸ワッシャ Rewind shaft washer		
663	巻戻Oリング板 Washer, rewind shaft O-ring		
664	巻戻Oリング板止め Stopper, rewind shaft O-ring		
667	ASA目盛軸 ASA dial shaft		
668	ASA目盛環 ASA dial		
670	ASA目盛バネ Spring, ASA dial		
673	ASA目盛板 ASA scale ring		
675	ASA目盛軸止め Stopper, ASA dial shaft		
676	巻戻クラッチ座金 Washer, rewind clutch		
805	Tダイアルリング O-ring, shutter mode selector		
808	巻戻軸リング O-ring, rewind shaft		
810	シンクロソケットリング O-ring, synch socket		
847	スプリングピン Spring cotter		

ICプリント板・表示LED部　IC printed circuit Board and LED

9F4B－R.3043.A

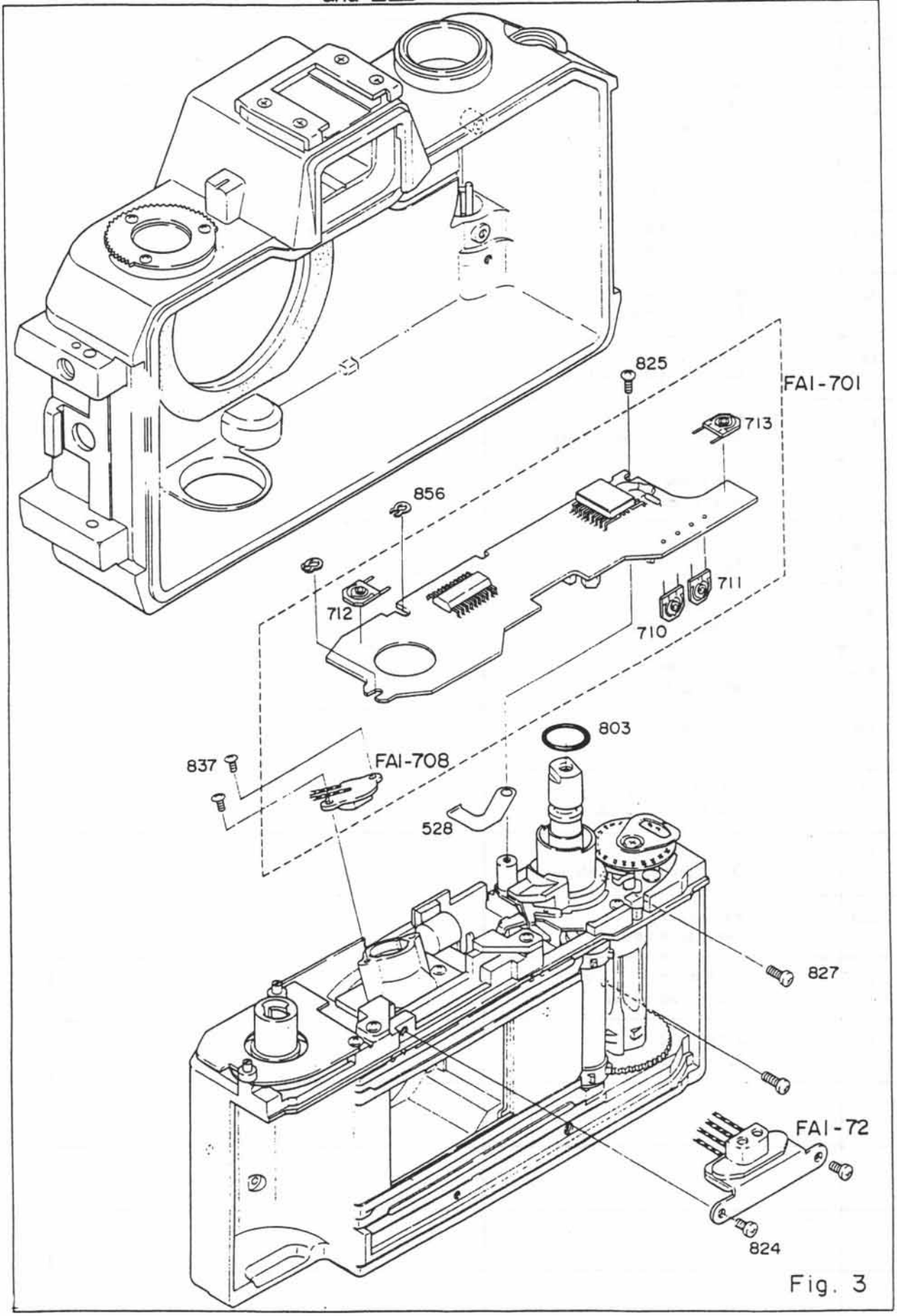


Fig. 3

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
528	コード押え板 Retaining plate, lead wires		
710	ASAγ調整抵抗 Resistor, ASAγ adjusting		
711	Auto レベル調整抵抗 Resistor, Auto lever adjusting		
712	1/90 調整抵抗 Resistor, shutter speed 1/90 Sec adjusting		
713	バッテリーチェック調整抵抗 Resistor, battery check adjusting		
803	巻上軸リング O-ring, film-advance shaft		
824	小ネジ Screw		
825	小ネジ Screw		
827	小ネジ Screw		
837	タップタイトネジ Tapping screw		
856	プリント板止めリング Snap ring, printed circuit board		
FA1-72	LED ホルダー LED holder		
FA1-701	プリント板 Printed circuit board		
FA1-708	SBC SBC		

巻上カムチャージレバー、スプール、スプロケット部

9F4B－R.3043. A

Take-up cam, Shutter Charge lever, Spool & Sprocket

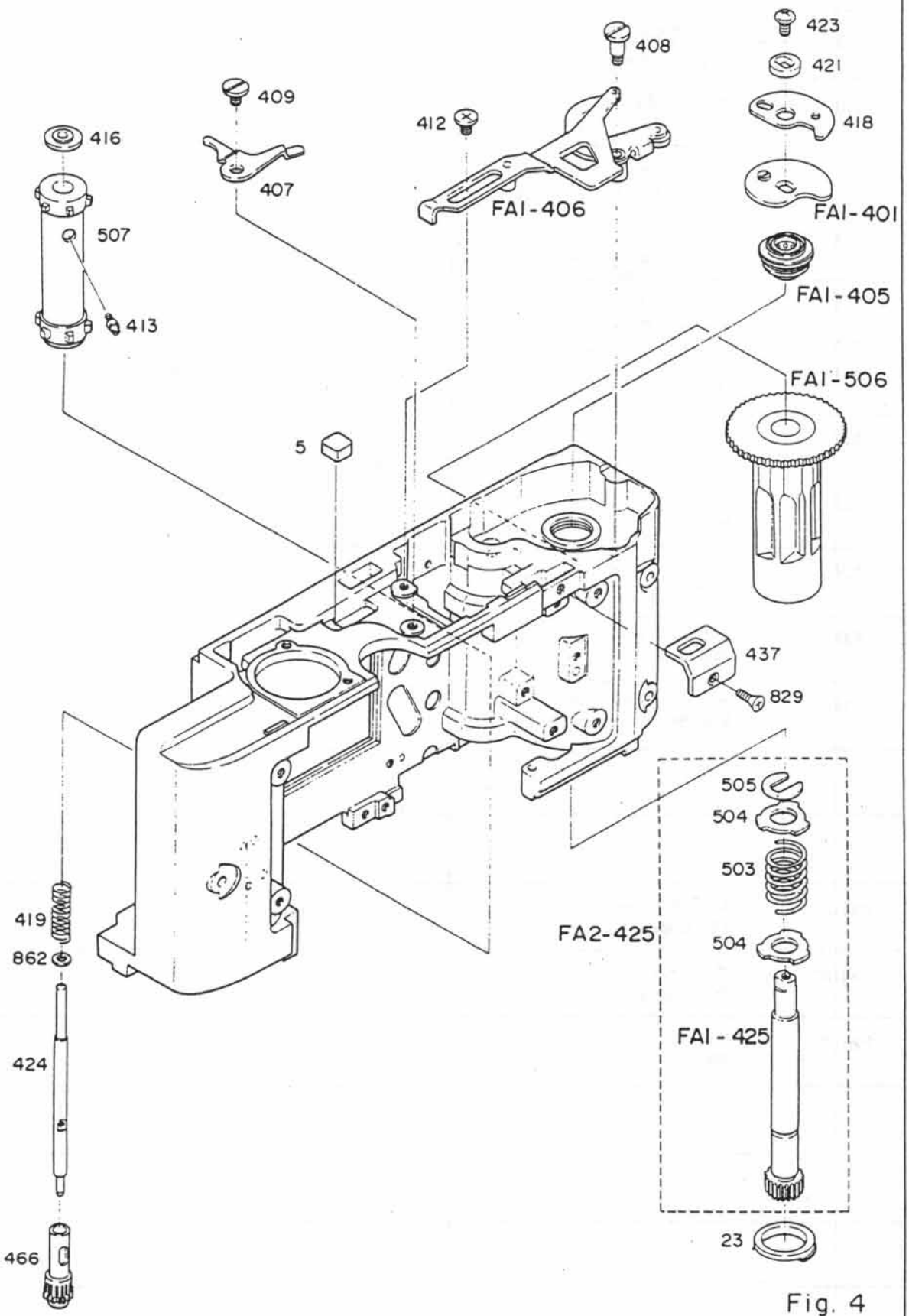


Fig. 4

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
5	消音ゴム Shock absord rubber	829	小ネジ Screw
23	遮光板 Washer	862	スプロケットバネ座金 Spring washer, sprocket
407	駆動部チャージレバー Mirror charge lever		
408	チャージ伝達レバー軸 Charge transmission lever shaft		
409	駆動部チャージレバー軸 Mirror charge lever shaft	FA1-401	巻上カム Take-up cam
412	シャッターチャージレバー軸 Shutter charge lever shaft	FA1-405	スプール軸受 Spool shaft bearing
413	スプロケットビス Sprocket screw	FA1-406	シャッターチャージレバー Shutter charge lever
416	スプロケットカラー Sprocket collar	FA1-425	スプール軸 Spool shaft
418	巻上カム調整板 Adjustor, take-up cam	FA1-506	スプール Spool
419	スプロケットバネ Sprocket spring	FA2-425	スプール軸部 Spool shaft
421	巻上軸止めワッシャ Washer, take-up shaft		
423	巻上カム止めネジ Take-up cam set screw		
424	スプロケット軸 Sprocket shaft		
437	レリーズレバー受 Acceptor, shutter release lever		
466	スプロケットギア Sprocket gear		
503	スプールフリクションバネ Spool friction spring		
504	スプールフリクション板 Friction ring		
505	スプールフリクションバネ受け Friction spring shoe ring		
507	スプロケット Sprocket		

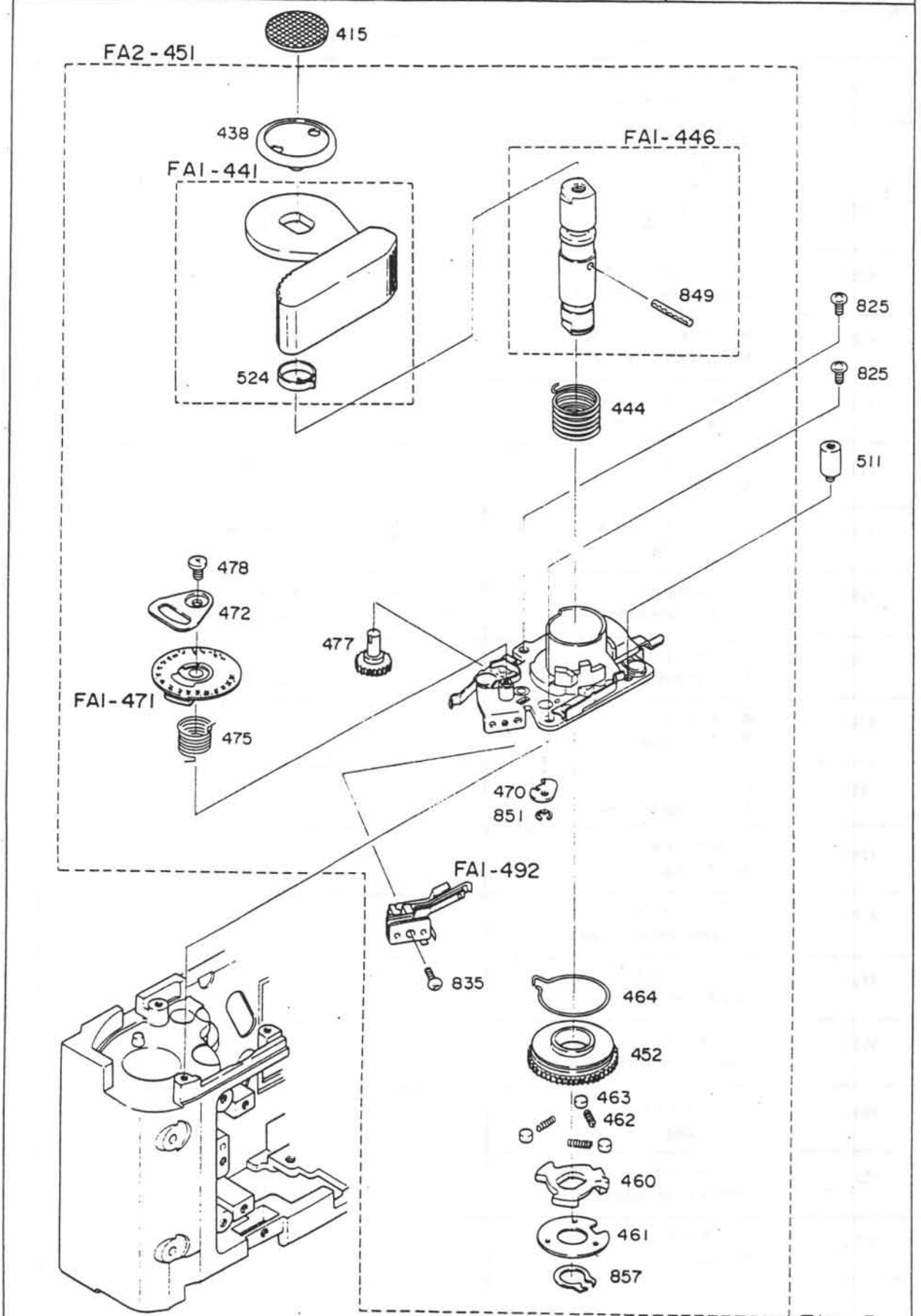

415
FA2-451
438
FA1-441
FA1-446
849
825
825
524
444
511
478
472
477
FA1-471
475
470
851
FA1-492
835
464
452
463
462
460
461
857

Fig. 5

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
415	巻上レバービス擬革 Leatherette, film-advance lever	851	E型止め輪 E-snap ring
438	巻上レバービス Screw, film-advance lever	857	巻上軸止めリング Snap-ring, film-advance shaft
444	巻上レバーバネ Film-advance lever spring		
452	巻上ギア Film-advance gear		
460	クラッチカム Clutch cam	FA1-441	巻上レバー Film-advance lever
461	巻上カムカバー Film-advance cam cover	FA1-446	巻上軸 Film-advance shaft
462	巻上カムコロ Film-advance cam roller	FA1-471	枚数計ラチェット Frame counter ratchet
463	巻上カムコロバネ Cam roller spring	FA1-492	空撮りスイッチ Blank shot switch
464	逆転防止バネ Reverse stopper spring	FA2-451	巻上基板部 Film-advance unit
470	巻上逆転防止爪 Reverse stopper claw		
472	枚数計指標 Frame counter index plate		
475	枚数計バネ Frame counter spring		
477	枚数計ギア Frame counter gear		
478	枚数計軸ビス Frame counter shaft screw		
511	プリント板取付軸A Axle A, printed circuit board		
524	レバークリックバネ Lever click spring		
825	小ネジ Screw		
835	小ネジ Screw		
849	スプリングピン Spring cotter		

シャッター・半押しスイッチ・バッテリーケース部

Shutter, Release Button SW.
& Battery Chamber

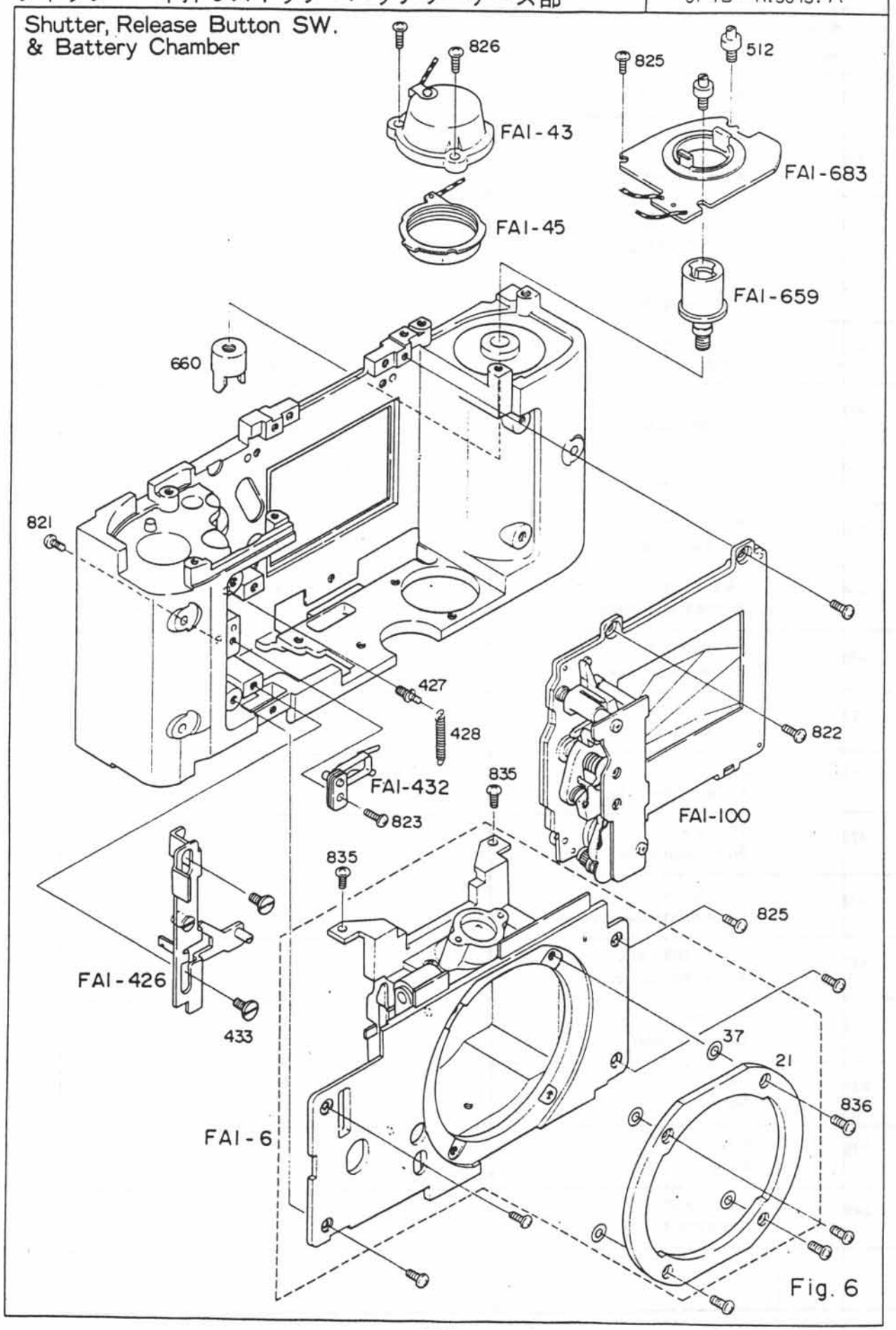


Fig. 6

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
21	内側バヨネット Bayonet mount ring	FA1-6	前板 Front plate unit
37A～D	ワッシャー Washer	FA1-43	電池ケース Battery chamber
427	レリーズレバーバネ掛け Release lever spring stud	FA1-45	電池アース接片 Battery earth contact
428	レリーズレバーバネ Release lever spring	FA1-100	シャッター Shutter
433	レリーズレバービス Release lever screw	FA1-426	レリーズレバー Shutter release lever
512	プリント板取付軸B Axle B, printed circuit board	FA1-432	押釦スイッチ Release button switch
660	巻戻フォーク Rewind fork	FA1-659	巻戻フォーク軸 Rewind fork axle
821	小ネジ Screw	FA1-683	ASA基板 ASA base plate
822	小ネジ Screw		
823	小ネジ Screw		
825	小ネジ Screw		
826	小ネジ Screw		
836	バヨネット止めビス Screw, bayonet mount ring		

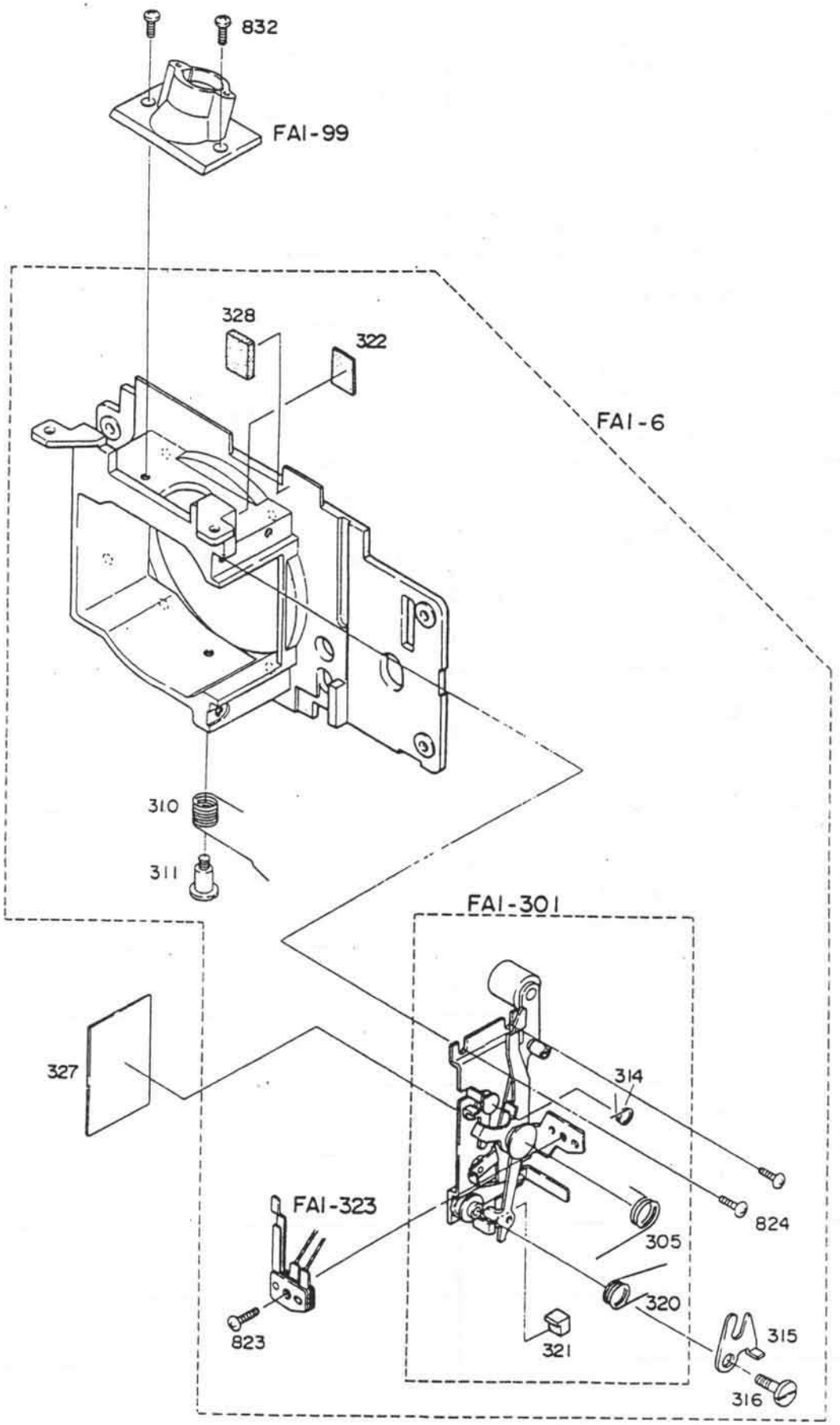

832
FAI-99
328
322
FAI-6
310
311
FAI-301
327
314
824
305
320
315
316
FAI-323
823
321

Fig. 7

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
305	駆動レバーバネ Spring, shaft #303	FA1-6	前板 Front plate unit
310	復元バネ Spring, lever #309	FA1-99	受光素子ホルダー SPD holder
311	復元バネビス Screw, spring #310	FA1-301	駆動基板 Mirror actuating unit
314	掛外レバーバネ Spring, lever #312	FA1-323	記憶スイッチ Memory switch
315	シャッタースタートレバー Lever, shutter release		
316	シャッタースタートレバー軸 Axle, lever #315		
320	レリーズカギレバーバネ Spring, hook #319		
321	復元レバーゴム Rubber, lever #309		
322	緩衝ゴムA Shock absorb rubber A		
327	遮光シート Light-shield seal		
328	緩衝ゴムB Shock absorb rubber B		
823	小ネジ Screw		
824	小ネジ Screw		
832	小ネジ Screw		

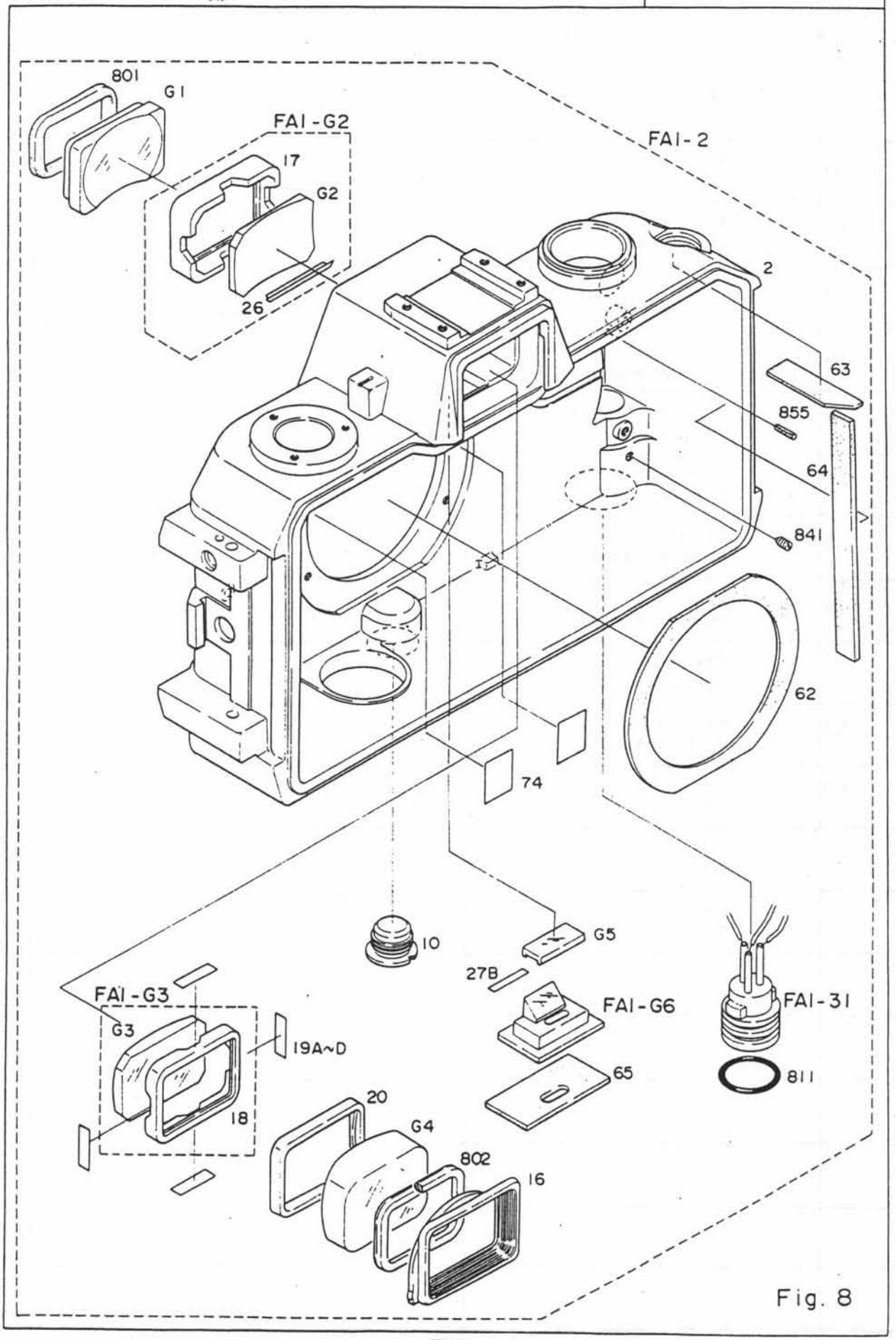

801
G1
FA1-G2
17
G2
26
FA1-2
2
63
855
64
841
62
74
10
G5
27B
FA1-G6
FA1-31
811
65
FA1-G3
G3
19A~D
18
20
G4
802
16

Fig. 8

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
10 1K 400 078	三脚ネジ Tripod screw	G2	レンズ Lens
16	接眼窓 Eyepiece, viewfinder	G3	レンズ Lens
17	G 2受け Retainer G2.	G4	レンズ Lens
18	G 3受け Retainer G3	G5	レンズ Lens
19A～D	フレーム調整座 Spacer, viewfinder		
20	G 4受け Retainer, G4		
26	G 2遮光板 Light-shield, G2	FA1-2	外 箱 Outer housing
27A, B	G 6調整座 Spacer, G6	FA1-31	シンクロガイド環 Synch terminal guide ring
62	マウント遮光モルト Light-shield sponge, lens mount	FA1-G2	G 2組 G2
63	枚数計窓遮光モルト Light-shield sponge, frame counter window	FA1-G3	G 3組 G3
64	外箱遮光モルト Light-shield, outer housing	FA1-G6	プリズム Prism
65	LED 遮光モルト Light-shield, LED		
74	コード押えテープ Retaining tape, lead wires		
801	G 1リング O-ring G1		
802	G 3リング O-ring G3		
811	シンクロコネクターリング O-ring, synch terminal		
841	すりわり付き止めネジ Cotter screw		
855	スプリングピン Spring cotter		
G1	レンズ Lens		

F17

外箱裏蓋部　Camera Back

9F4B－R.3043. A

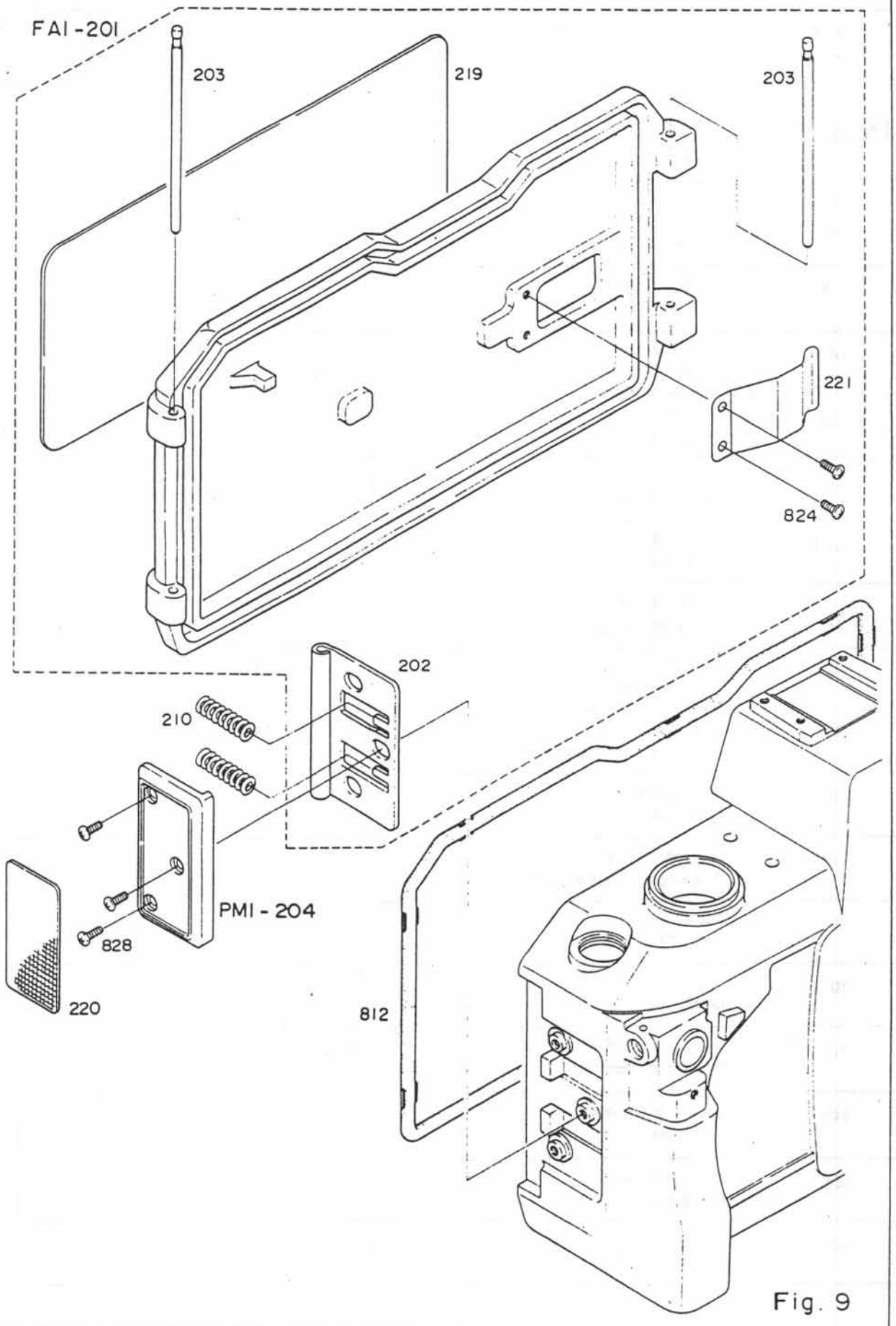


Fig. 9

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
202	裏蓋ヒンジ板 Hinge, camera back		
203	裏蓋軸 Shaft, camera back		
210	裏蓋バネ Spring, camera back		
219	裏蓋擬革 Leatherette, camera back		
220	裏蓋ヒンジ擬革 Leatherette, hinge #202		
221	パトローネ押えバネ Retainer, film cartridge		
812	裏蓋リング O-ring, camera back		
824	小ネジ Screw		
828	小ネジ Screw		
FA1-201	裏蓋 Camera back		
PM1-204	ヒンジカバー Camera back hinge cover		

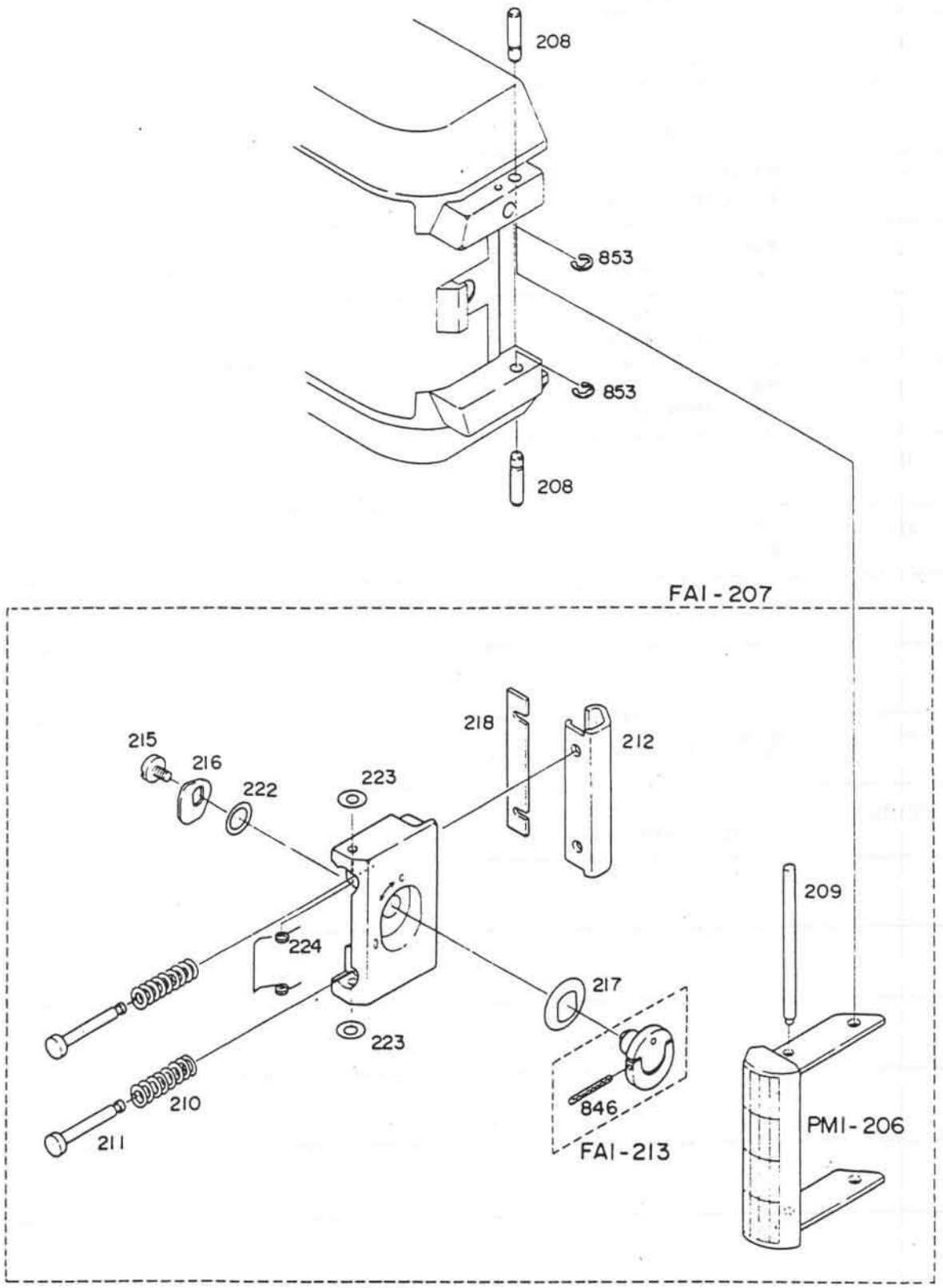

208
853
853
208
FAI-207
215
216
222
223
218
212
224
217
223
210
211
846
FAI-213
209
PMI-206

Fig. 10

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
208	バックル軸 Pin, buckle		
209	バックル連結軸 Shaft, buckle		
210	裏蓋バネ Spring, camera back		
211	バネガイド軸 Guide pin, spring #210		
212	バックル爪 Buckle claw		
215	ロック軸ビス Screw, lock knob		
216	ロック板 Plate, lock knob		
217	ロックバネ Spring, lock knob		
218	ガイド板 Guide, buckle claw		
222	ワッシャー Washer, lock knob		
223	ワッシャー Washer, buckle B		
224	バックルバネ Spring, buckle B		
846	スプリングピン Spring cotter		
853	E型止め輪 E-snap ring		
FA1-207	バックルB Buckle B		
FA1-213	ロック軸 Lock knob		
PM1-206	バックルA指当 Buckle A lever		

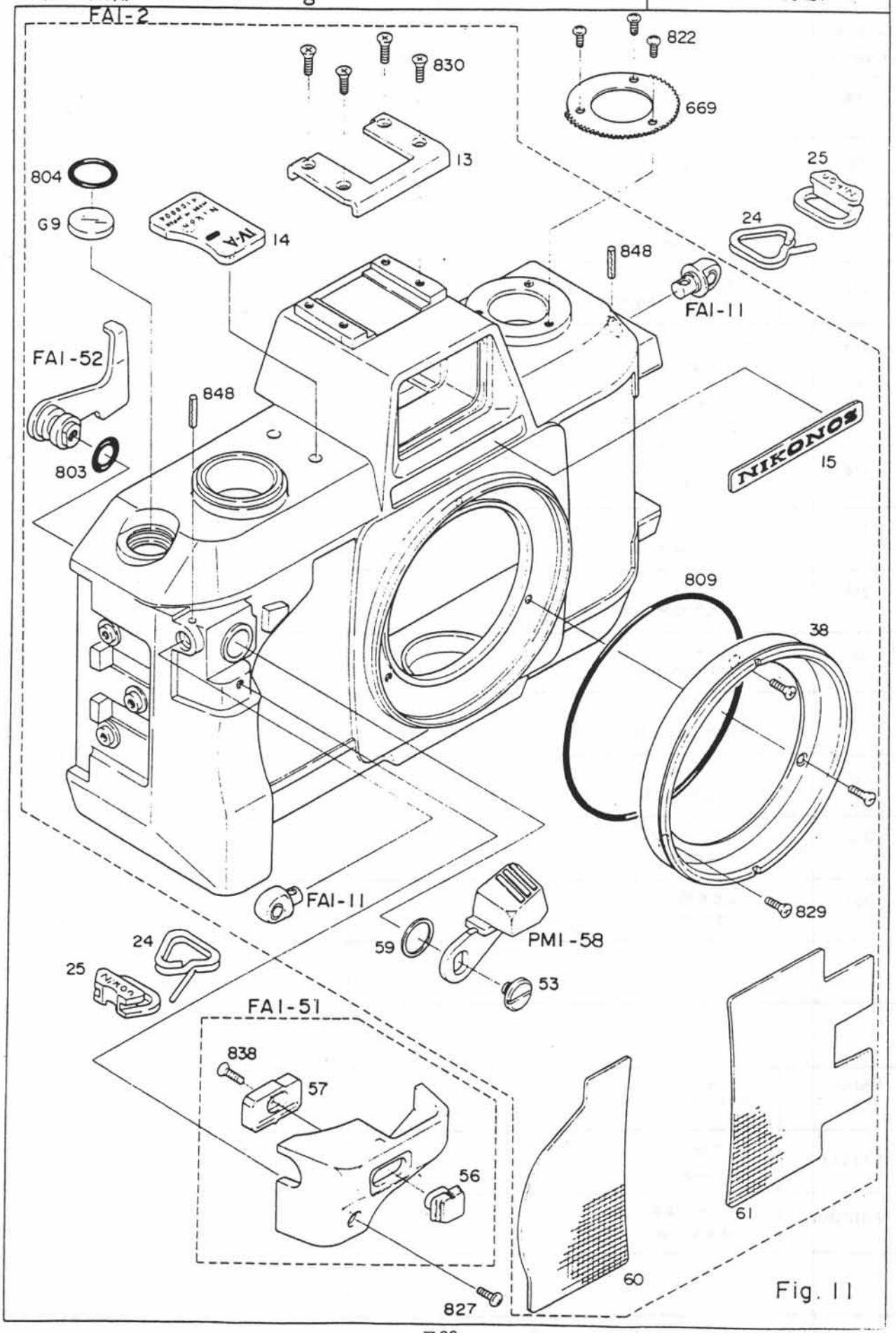

FAI-2
822
830
669
13
804
25
G9
14
24
848
FAI-11
FAI-52
848
803
NIKONOS
15
809
38
FAI-11
829
24
59
PMI-58
25
53
FAI-51
838
57
56
61
827
60

Fig. 11

部品番号 Part No.	名称 Name	部品番号 Part No.	名称 Name
13	シュー Accessory shoe	830	小ネジ Screw
14	T指標板 Plate, shutter mode selector index	838	タップタイトネジ Tapping screw
15	銘板 Name plate	848	スプリングピン Spring cotter
24	三角環 Triangular ring	G9	駒数計窓 Frame counter window
25	三角環保護カバー Triangular ring protector		
38	外箱マウント Outer housing lens mount	FA1-11	吊環 Eyelet
53	押釦レバービス Screw, axle #52	FA1-51	押釦カバー Shutter release button cover
56	押釦ロック Lock knob, shutter release button	FA1-52	押釦レバー軸 Shutter release button axle
57	押釦ロック板 Plate, lock knob	PM1-58	押釦指当 Shutter release button
59	押釦レバーワッシャー Washer, axle #52		
60	右前擬革 Leatherette, wind-side		
61	左前擬革 Leatherette, rewind-side		
669	ASAクリック板 Click plate, ASA dial		
803	巻上軸リング O-ring, film-advance shaft		
804	枚数計窓リング O-ring, frame counter window		
809	マウントリング O-ring, outer housing lens mount		
822	小ネジ Screw		
827	小ネジ Screw		
829	小ネジ Screw		

IV. Disassembly & Assembly

[1] Chart of Disassembly and Assembly Procedure - - - - - - D1

[2] Disassembly and Assembly Procedure

I Body Cover/Pressure Plate - - - - - - - - - - - - - - - D2

II Body Disassembly and Assembly Procedure - - - - - - - D4

III Body (1)

III-1 IC Printed Circuit - - - - - - - - - - - - - - - D6
III-2 Circuit Diagram - - - - - - - - - - - - - - - - - D7
III-3 Front Plate/Rewind Fork, ASA Base Plate - - - - D8

IV Body (2)

IV-1 Film-advance Base Plate - - - - - - - - - - - - D10
IV-2 Shutter/Release Button Switch - - - - - - - - - D12
IV-3 Take-up Cam/Shutter Charge Lever - - - - - - - D14
IV-4 Spool - D16
IV-5 Sprocket - D17

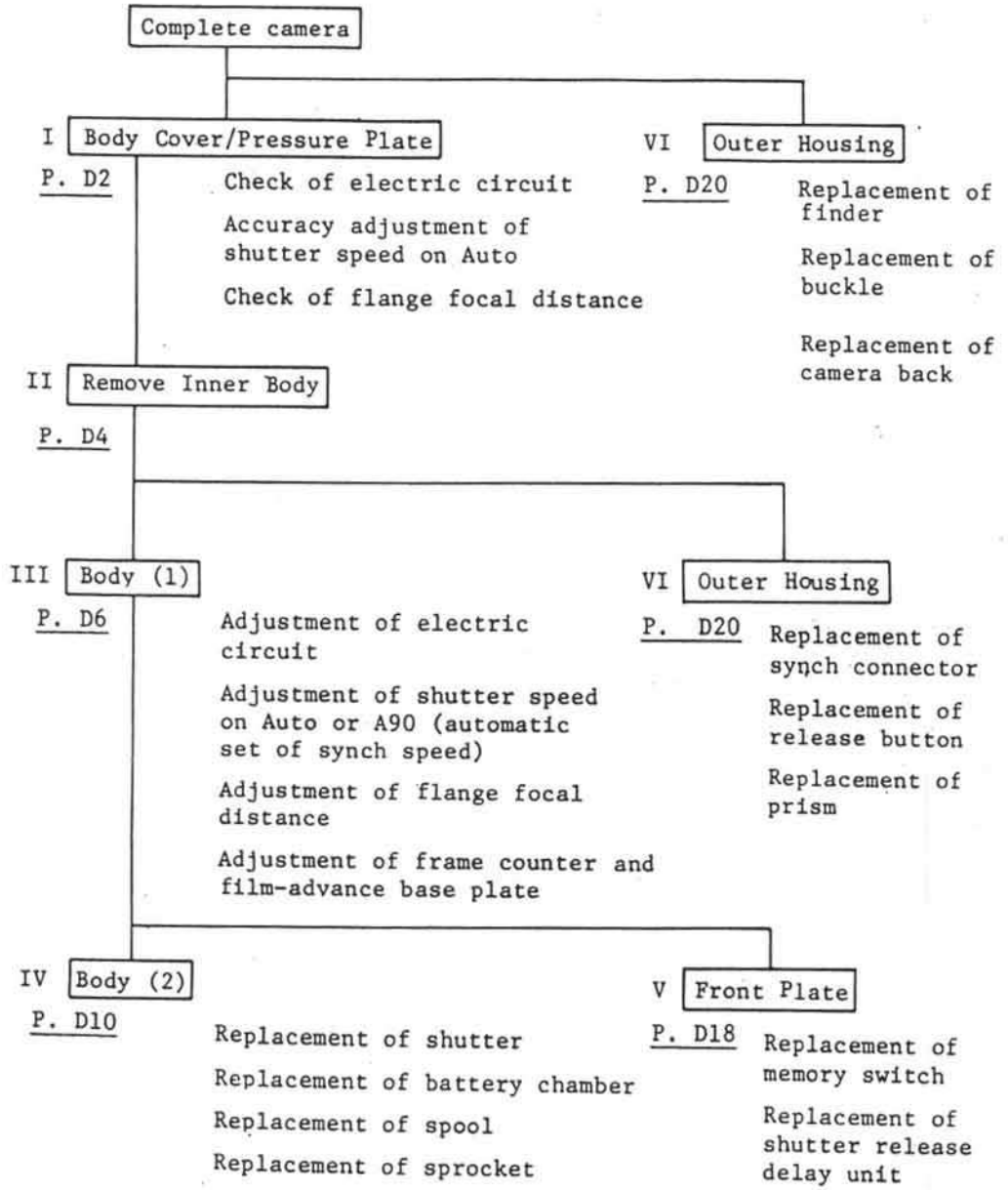
V Front Plate - D18

VI Outer Housing

VI-1 Finder - D20
VI-2 Buckle - D22
VI-3 Camera Back - - - - - - - - - - - - - - - - - - D23
VI-4 Shutter Release Button - - - - - - - - - - - - - D24
VI-5 Frame Counter Window/Synch Guide Ring - - - - - D25
VI-6 Others - D26
VI-7 Waterproof Test of Outer Housing - - - - - - - D28

D0

[1] Chart of Disassembly and Assembly Procedure



I. II. III - - - P.____: Classification No. and reference page

* : Asterisk for major check, adjustment and parts replacement

[2] Disassembly and Assembly Procedure

I Body Cover / Pressure Plate

Disassembly Procedure

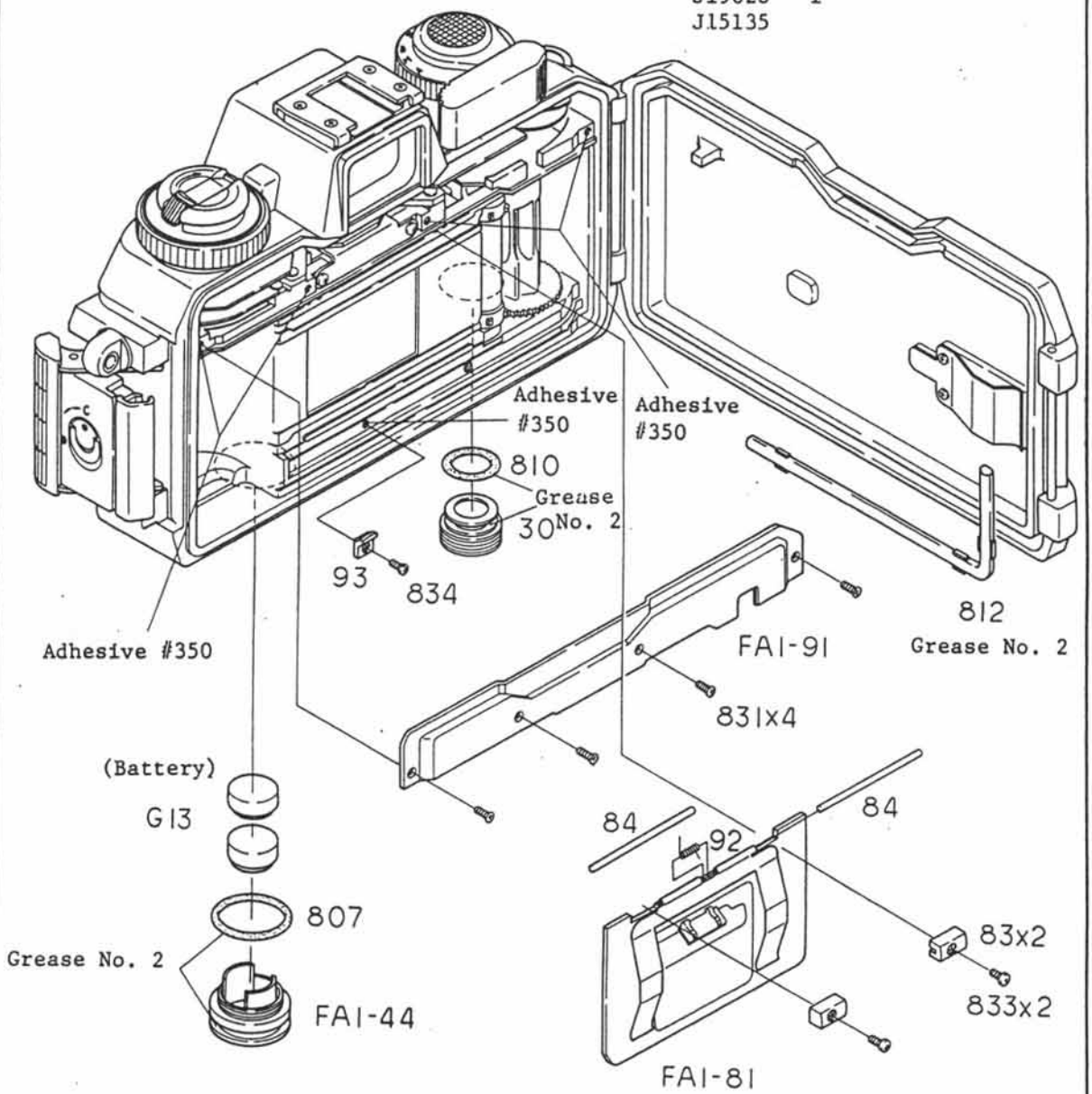
Pressure plate	Body cover FA1-91	Battery chamber lid	Synch terminal cover
Screw ⊕ #833 x 2	Screw ⊕ #831 x 4	FA1-44	#30

(Check of flange focal distance)

Tool J18086
J19004

(Check of electric circuit · Adjustment of shutter speed on Auto)

Tool J15199
J18084
J19036
J19028 - 1
J15135



Grease No.2 : Daphne Unilex

[1] Check of flange focal distance

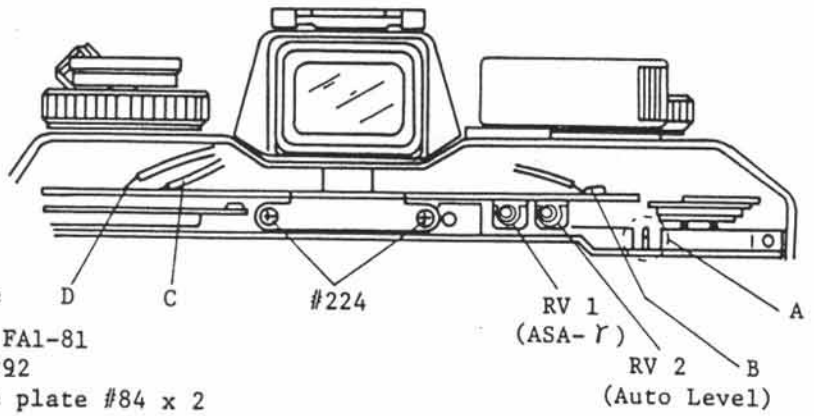
Standard : Outer Rail 27.02 ± 0.04 mm

[2] Check of electric circuit · Adjustment of shutter speed on Auto

Use Tool battery J15199, DC power supply J18084 and Tool switch J15200. Put J15200 into the section A of camera body as shown in Fig. I-1. Next, repeat shutter release and charge until frame-counter reaches "1".
(Refer to Adjustment section P. A1 for detail)

1. Check of battery voltage check circuit — Adjustment Sec. P. A2
2. Check of A90 (automatic set of synch speed) — " P. A3
3. Check and adjustment of ASA - γ setting — " P. A3
4. Check and adjustment of Auto-level — " P. A3
5. Other checks — " P. A6
   Warning, shutter speed on M mode, bulb, critical shutter speed, synch speed, etc.

Fig. I-1



Assembly Procedure

Pressure plate FA1-81
Spring, hinge #92
Hinge, pressure plate #84 x 2

Put one of #84 through FA1-81 and #92. Next, place the other one along the hinge to adjust play of groove of #83.

Insert the shorter arm of #92 into FA1-81 and the longer into camera body.

Bearing, hinge #83 x 2
Screw ⊕ #833 x 2
Tightening torque : 0.7kg·cm

Retainer, pressure plate
screw ⊕ #834
Tightening torque : 0.15kg·cm
(for avoiding the interference with the shutter)

Body cover FA1-91
Screw ⊕ #831 x 4
Tightening torque : 0.3kg·cm

Battery chamber lid FA1-44
O-ring, battery chamber #807

Synch terminal cover #30
O-ring, synch socket #810

II. Body Disassembly and Assembly Procedure

Disassembly Procedure

ASA dial Shaft #675 — Film-advance Lever #438

→ Screw ⊕ #824 x 2

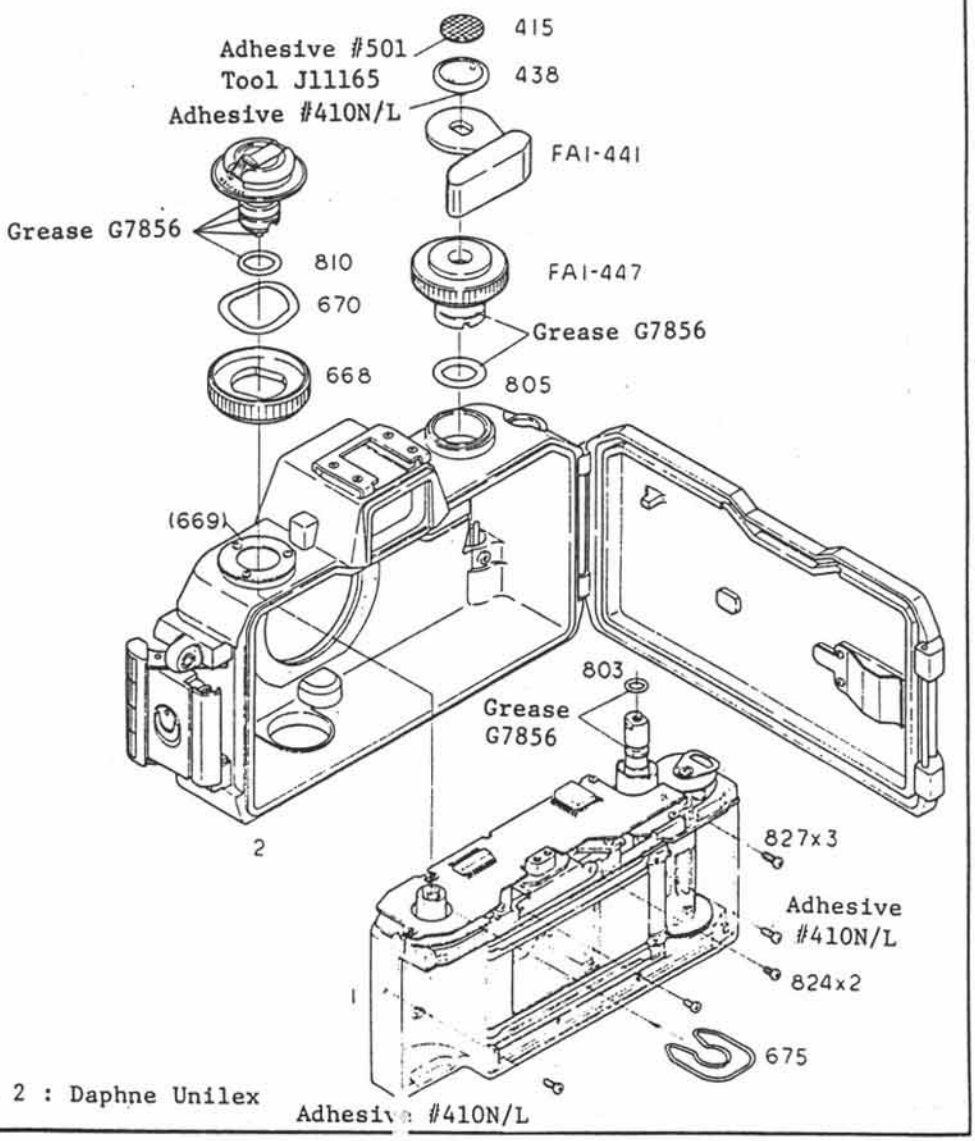
→ Remove #824 which holds LED. (See P. D3 Fig. I-1)

→ Remove Inner body

→ Unsolder #770 (Orange), #771 (Blue) and #772 (Black).
Screw ⊕ #827 x 3 (See P. D5 Fig. II-1) (Refer to P. D3 Fig. I-1)

→ III Body (1) P. 5 / VI Outer housing P. 30

Replace FA1-441 and #438 temporarily for convenience.



Grease No. 2 : Daphne Unilex

Assembly Procedure

Outer housing (#2)

↓

Body (#1)

Screw ⊕ #827 x 3

Screw ⊕ #824 x 2

Soldering: Fig. II-1 (Refer to B, C and D in Fig. I-1, P. D3)

Be careful not to catch lead wires between body and outer housing.

↓

ASA dial #668

Install #668 so that its protrusion may not interfere with gear of #669.

↓

Spring: ASA dial #670

ASA dial; Shaft Section A of the figure. (Refer to Sub-assembling Sec. P. S1)

O-ring, synch socket #810

Put bend of #671 into cutout of #667.

↓

Stopper, ASA dial shaft #675

Install #675 into groove of FA1-667, with FA1-667 depressed.

↓

Shutter mode selector FA1-447

O-ring, shutter mode selector #805

When installing FA1-447, align cutout of FA1-447 with protrusion of #495.

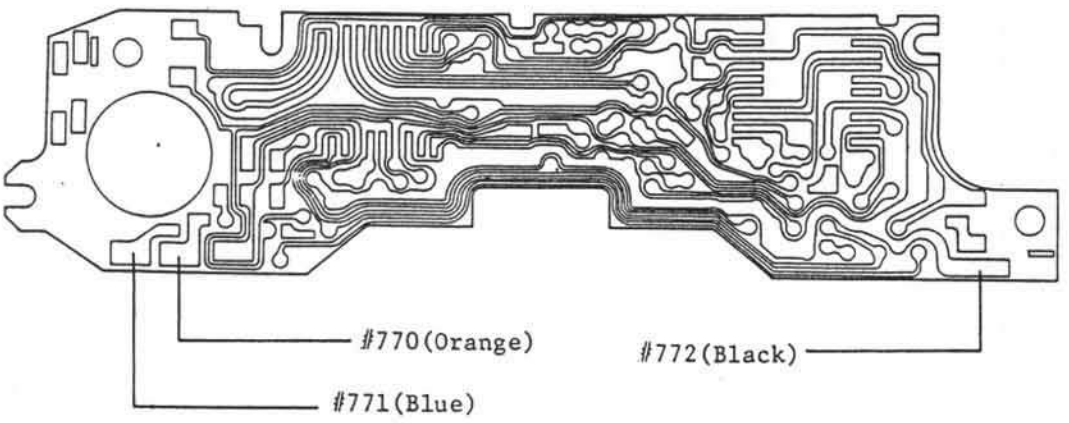
↓

Film-advance lever FA1-441

Screw, film-advance lever #438

Leatherette, film-advance lever #415

Fig. II-1 Wiring



III Body (1)

III-1 IC Printed Circuit

Disassembly Procedure

Unsoldering

Do not unsolder #750, #751 and #775.

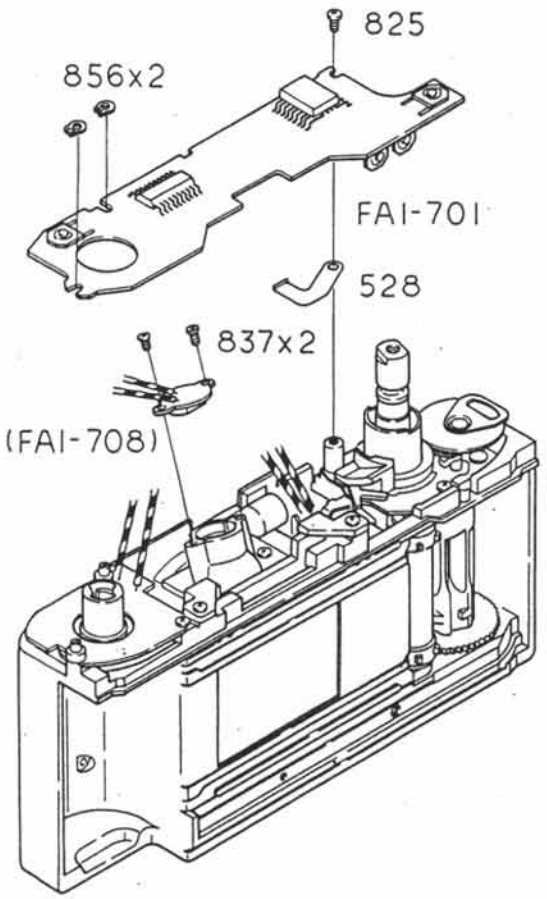
(P. A7 Circuit within dotted circle)

Screw ⊕ #825

Snap ring, printed circuit board #856 x 2

SPD — Screw ⊕ #837 x 2

Do not unsolder SPD.



Use #74 and #528 to fix the lead wires on front plate.

Assembly Procedure

Body (#1)

↓ Put the lead wires in order.

SPD (FA1-708)

↓ Screw ⊕ #837 x 2
Tightening torque 1kg·cm

Retaining plate, lead wires #528

Printed circuit board FA1-701

↓ Screw ⊕ #825

Snap ring, printed circuit board #856 x 2

Lead wires

Electric circuit/Shutter speed adjustment (Refer to Adj. Sec. P. A1)

Note: Soldering of lead wires is refered to Circuit Diagram, P. D7.

Printed Circuit board

Blank shot switch (FA1-492)

#774 (Black) #754 (Pink)
#773 (Grey)

Shutter (FA1-100)

#767 (Black) #763 (Yellow)
#766 (Pink) #769 (Brown)
#765 (Green) #768 (Blue)
#764 (Violet)

Memory switch (FA1-323)

#761 (Pink) #762 (White)

ASA base plate (FA1-683)

#759 (Yellow) #760 (Violet)

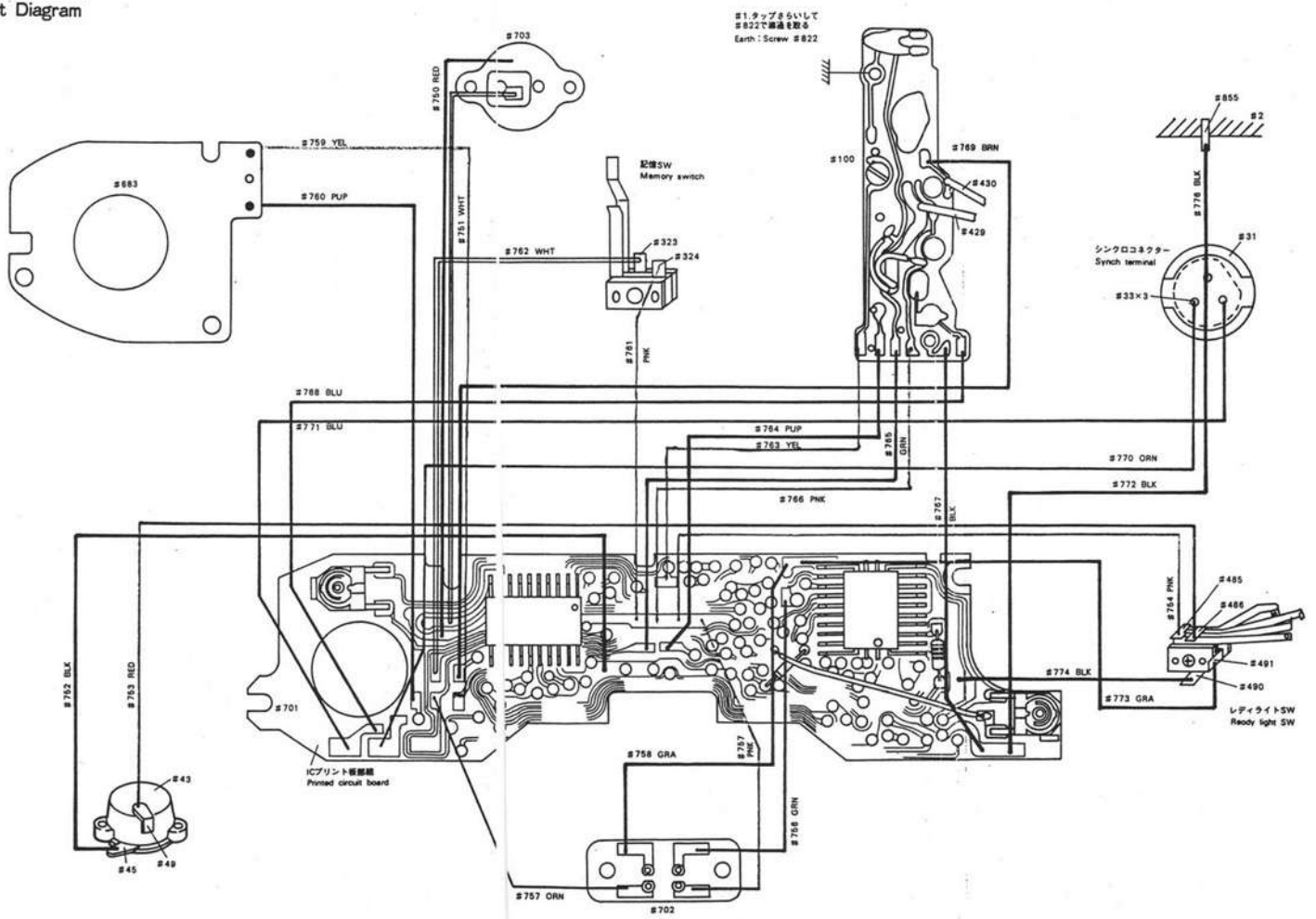
Battery earth contact (FA1-45)

#752 (Black)

LED holder (FA1-72)

#756 (Green) #755 (Pink)
#758 (Grey) #757 (Orange)

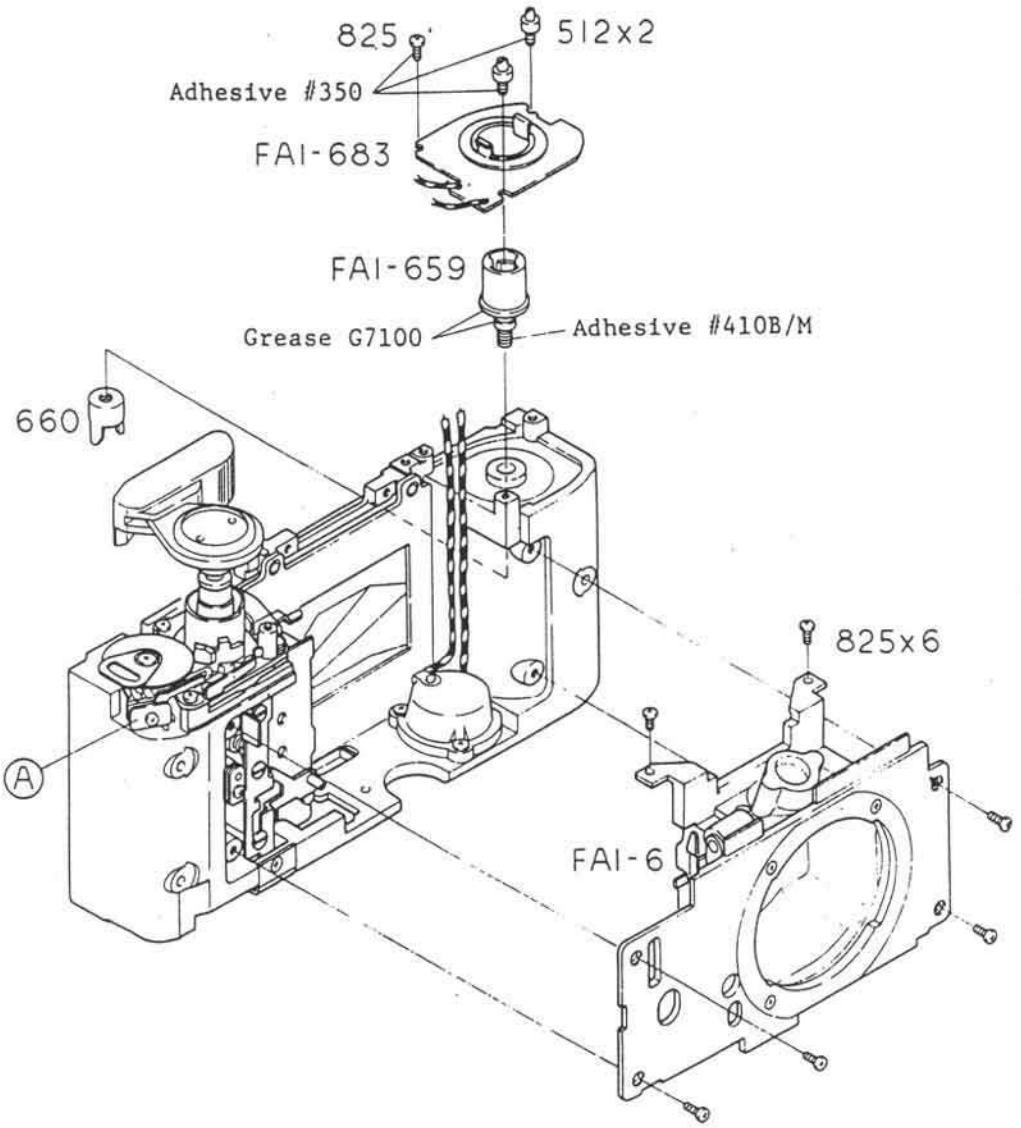
Ⅲ-2 実体配線図
Circuit Diagram



III-3 Front Plate/ Rewind Fork/ ASA Base Plate

Disassembly Procedure

- Remove Front plate
  - Screw ⊕ #825 x 6
  - Unsolder #754 (Red) from Blank-shot switch: (Section A in the figure)
  - IV Body (2) — P. D10
  - V Front plate unit FA1-6 — P. D18
- ASA base plate FA1-683
  - Screw ⊕ #825
  - Screw ⊖ #512 x 2
  - Rewind fork #660
    - Use a stick to hold #660 and then unscrew FA1-659.



Assembly Procedure

Body (#1)

↓

Front plate unit FA1-6

Screw ⊕ #825 x 6

Set both of the body and the front plate unit to the shutter-charged condition. When installing the front plate, place it downward, as well as toward film-advance shaft. Tighten #825 in the order as shown in Fig. III-1; for avoiding deformation.

Rewind fork axle FA1-659

Rewind fork #660

Use a stick to hold #660 and screw FA1-659, with rewind fork replaced.

Tightening torque : 3.5kg·cm

↓

ASA base plate FA1-683

Screw ⊕ #825

Screw ⊖ #512 x 2

Tightening torque : 0.2kg·cm

↓

Lead wire #753 (Red)

See Fig. III-2.

#753 can be soldered also after printed circuit board is installed.

↓

Film advance timing adjustment	Refer to Adj. Sec.	P. A7
Release button adjustment	"	P. A8
Shutter release adjustment	"	P. A9
Flange focal distance adjustment	"	P. A10

Fig. III-1

Tightening order of front plate screws.

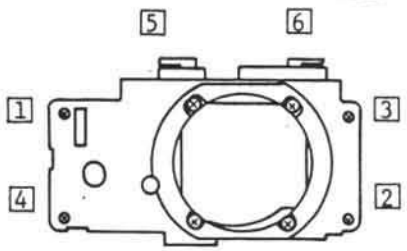
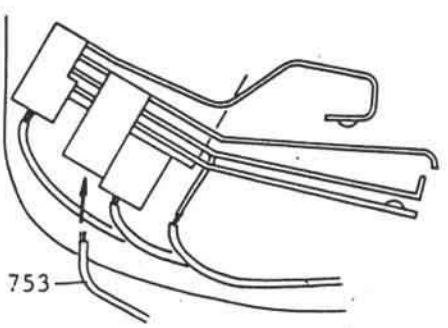


Fig. III-2 Blank-shot switch



IV Body · (2)

IV-1 Film-advance Base Plate

Disassembly Procedure

Film-advance unit FA2-451

Screw ⊕ #825 x 2

Screw ⊖ #511

Assembly Procedure

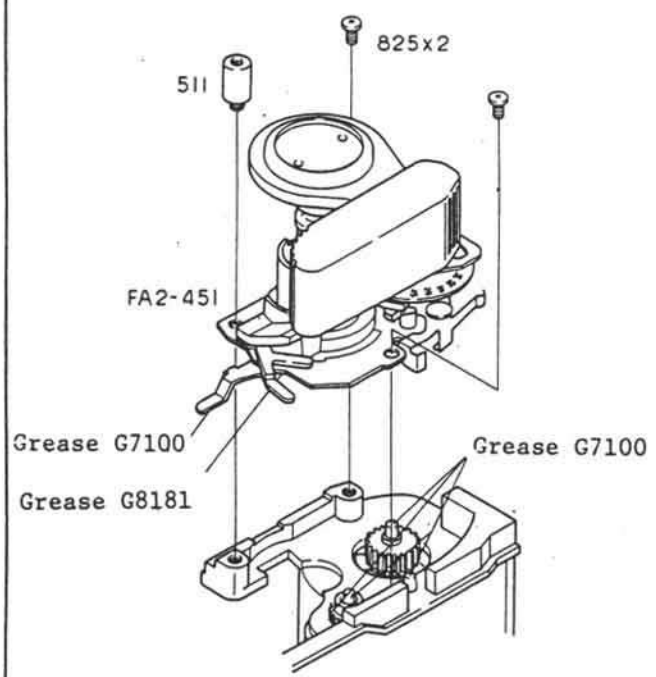
Body (#1)

↓

Film-advance unit FA2-451

Screw ⊕ #825 x 2

Axle A, printed circuit board #511



(1) Apply the grease onto the sections where are illustrated in the figure.

(2) Adjust relative position of shutter charge lever FA1-406 to Take-up cam #401 after film-advance completion

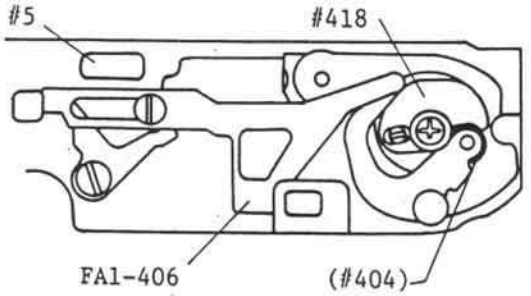
(3) Sprocket teeth positioning

(4) Turn Film-advance shaft #446 until Sprocket stopper #454 is engaged. Next, hold film-advance lever halfway. When installing FA2-451, put aside protrusion of Clutch cam #460.

(5) Frame-counter gear's notch positioning

(6) When installing FA2-451, use care to engagements of Sprocket shaft #424, Frame-counter gear #477 and Spool gear #467. But, put aside Frame-counter plate spring #476.

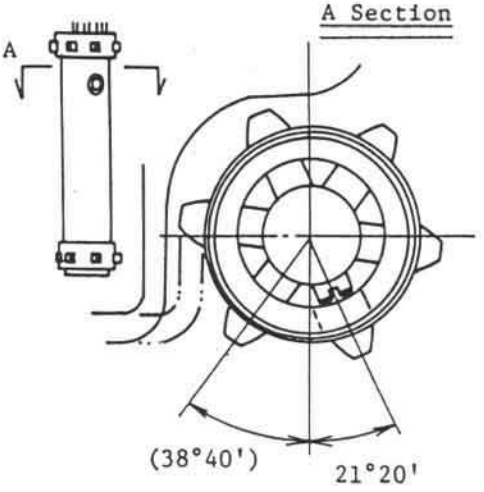
Fig. IV-1 Relative position of Shutter charge lever to Take-up cam



Place FA1-406 against Shock absorb rubber #5.
Clearance between #404 and #418 should be slight.

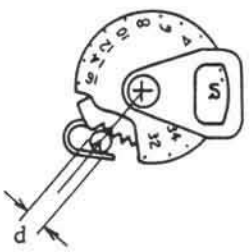
After installing front plate unit, adjust timing of film advance.
(Refer to P. A7)

Fig. IV-2 Sprocket teeth positioning



Align the hole of sprocket with sprocket screw; the tooth above the hole should be positioned 21°20' from the center line of sprocket shaft. But, the next tooth is located 38°40'.
See Fig. IV-2.

Fig. IV-3 Frame-counter gear's notch positioning



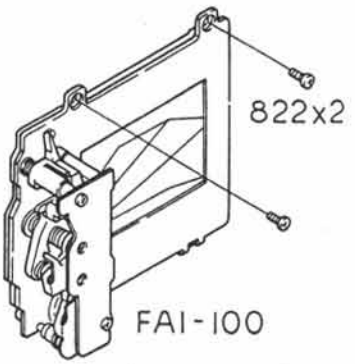
When installing FA2-451, position notch of #477 outside the circumference of FA1-471 as shown in Fig. IV-3. Thus frame-counter advances in halfway of film-advance.

When the film-advance lever's stroking is not smooth, re-locate FA2-451 with #825 x 2 and #511 loosened.

IV-2 Shutter/ Release Button switch

Disassembly Procedure

- Battery Case
  - Screw ⊕ #826 x 2
- Shutter release lever FA1-426
  - Screw ⊖ #433 x 2
  - Spring #428
- Release button switch FA1-432
  - Unsoldering Fig. IV-5
  - Screw ⊕ #823
- Shutter FA1-100
  - Screw ⊕ #821
  - Screw ⊕ #822 x 2



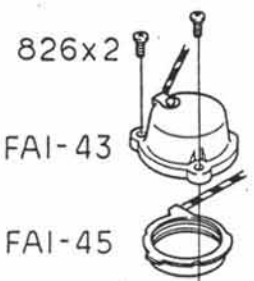
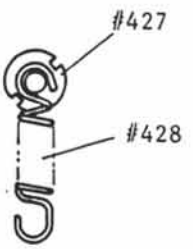


Fig. IV-4 How to hook #428



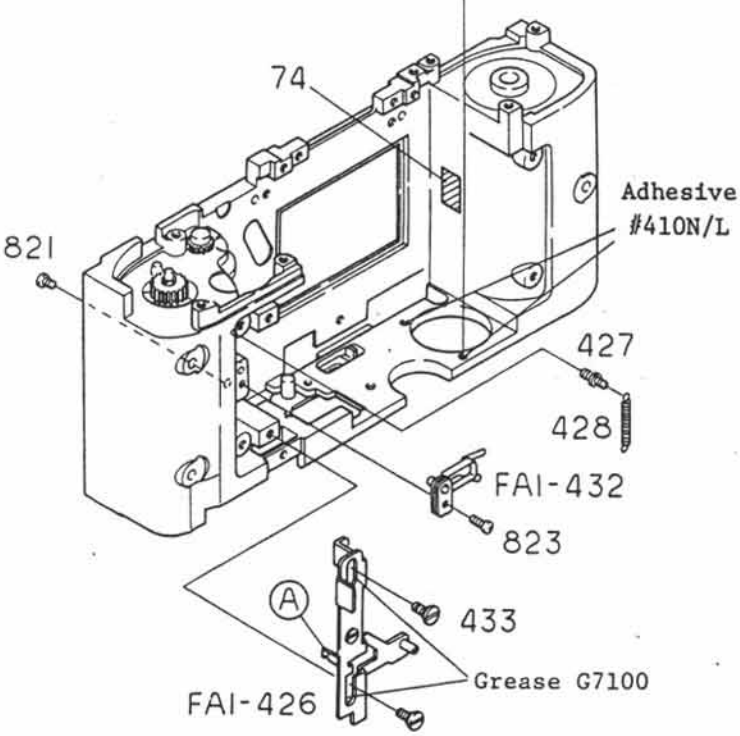
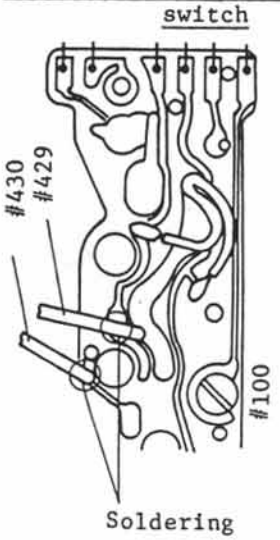


Fig. IV-5 Release button switch



Assembly Procedure

Body (#1)

↓

Release lever spring stud #427

Release lever spring #428

Fig. IV-4 shows how to hook #428.

↓

Shutter FA1-100

Screw ⊕ #822 x 2

Screw ⊕ #821

Place pin of shutter charge lever FA1-406 toward the rewind side. (Shutter-charged condition)

When screwing #821 and #822, place FA1-100 downward, as well as toward the rewind side.

↓

Release button Switch FA1-432

Screw ⊕ #823

When screwing #823, place FA1-432 counterclockwise; it is prone to turn clockwise.

Tightening torque : 1kg·cm
Soldering of contact blades #429 and #420 is referred to Fig. IV-5.

When soldering contact blades, depress them onto the circuit board.

↓

Shutter release lever FA1-426

Screw ⊖ #433 x 2

Insert Acceptor #437 into the lower opening of FA1-426.

Hook #428 to bend of FA1-426 (Section A of the figure).

↓

Battery chamber FA1-43

Battery earth contact FA1-45

Screw ⊕ #826 x 2

Retaining tape, lead wires #74

Align cutout of FA1-45 with screw-hole, when screwing #826.

Tightening torque: 1kg.cm

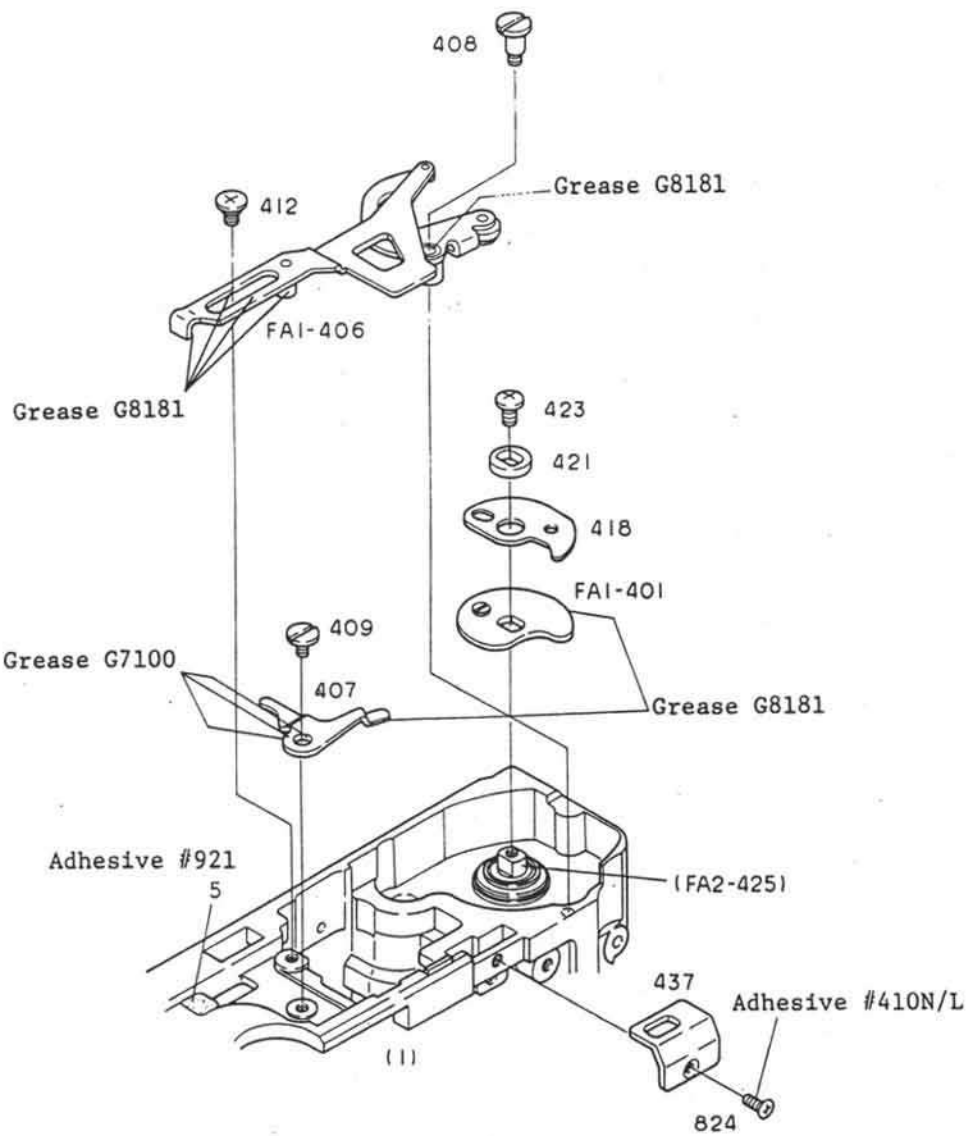
Place the lead wires along the body die-casting.

Make sure that FA1-45 moves slightly in FA1-43; it avoids the O-ring's deviation. #74 should not be interfered with shutter.

IV-3 Take-up Cam/Shutter Charge Lever

Disassembly Procedure

- Acceptor shutter release lever #437
  - Screw ⊕ #824
- Shutter charge lever FA1-406
  - Screw ⊖ #408
  - Screw ⊖ #412
  - Film-advance cam
    - Screw ⊕ #423
    - Loosen #423 before removing FA1-406.
    - Mirror charge lever #407
      - Screw ⊖ #409



Assembly Procedure

Body (#1)

Spool shaft (FA2-425)

↓

Take-up cam FA1-401

Adjustor, take-up cam #418

Washer, take-up shaft #421

Screw ⊕ #423

Put eccentric pin of FA1-401 into the oval opening of #418.

↓

Mirror charge lever #407

Screw ⊖ #409

#407 moves slightly.

↓

Shutter charge lever FA1-406

Screw ⊖ #408

Screw ⊕ #412

Place roller of FA1-406 apart from #401 and engage #407 with bend of FA1-406.

FA1-406 moves smoothly.

↓

Acceptor, shutter release lever #437

Screw ⊕ #824

Install #437 in parallel with the camera body's edge.

Tightening torque : 1kg·cm

IV-4 Spool

Disassembly Procedure

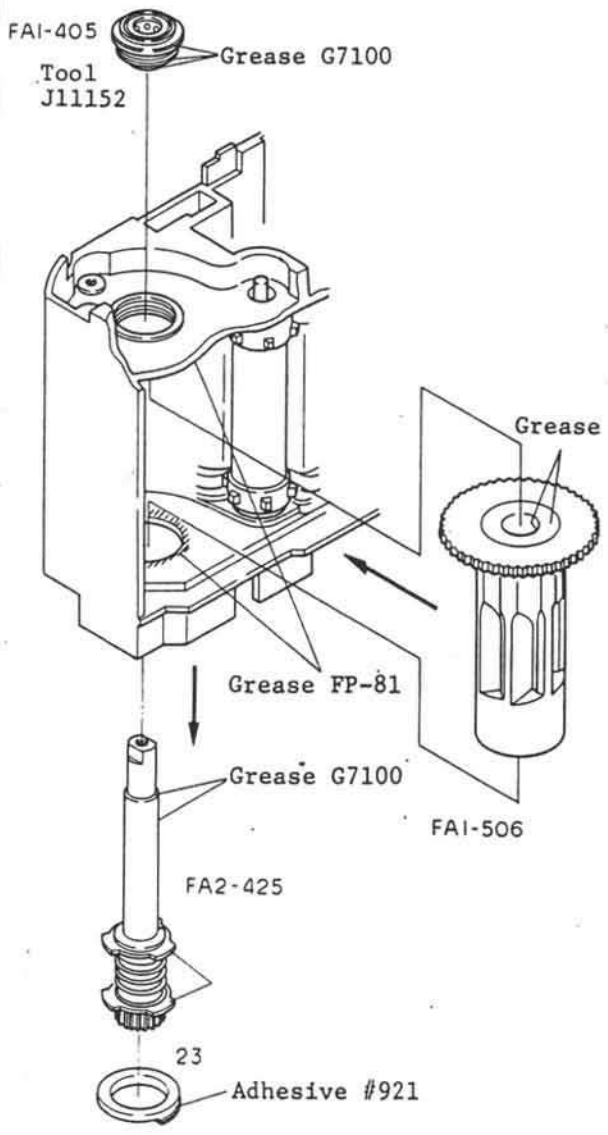
Spool shaft bearing FA1-405
Tool J11152

↓

Washer #23
Push FA2-425 in the direction of arrow to remove #23.

↓

Spool shaft FA2-425
Spool FA1-506



Assembly Procedure

Body (#1)
Apply Oil barrier (FP-81) around the openings for spool.

↓

Spool FA1-506

↓

Spool shaft bearing FA1-405

↓

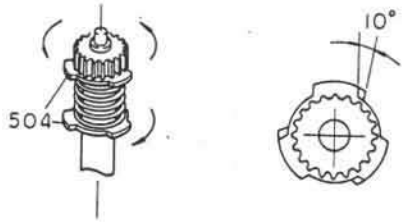
Spool shaft FA2-425
See Fig. IV-6

↓

Washer #23
Cement #23 on camera body, aligning groove of #23 with protrusion of body, Spool Friction : 144-264g

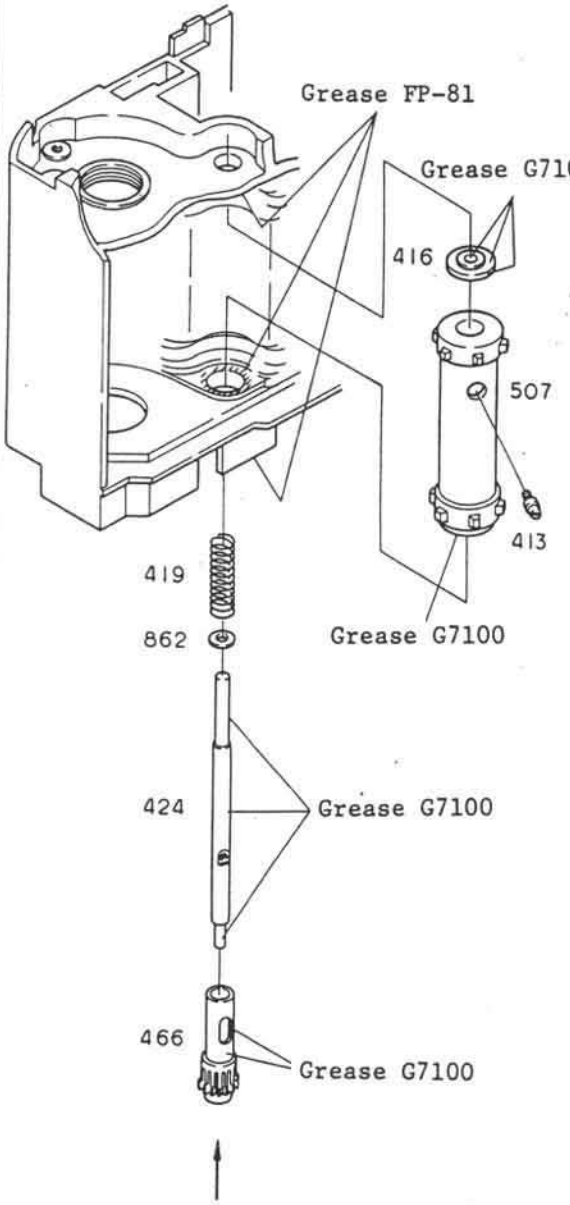
Grease FP-81 is Oil barrier Sumiflunon FP-81.

Fig. IV-6 Spool shaft Assembly Procedure



Turn #504 to provide a deviation of approx. 10° between the upper ring and the lower one as shown in Fig. IV-6. When installing #504, adjust it along the inner groove of spool.

IV-5 Sprocket



Disassembly Procedure

Sprocket Screw ⊖ #413

Push sprocket shaft in the direction of arrow to align the access hole with the head of #413.

Assembly Procedure

Body (#1)

↓ Apply FP-81 around the openings for sprocket.

Sprocket #507

Sprocket collar #416

↓

Sprocket shaft #424

Spring washer, sprocket #862

Sprocket spring #419

↓

Sprocket gear #466

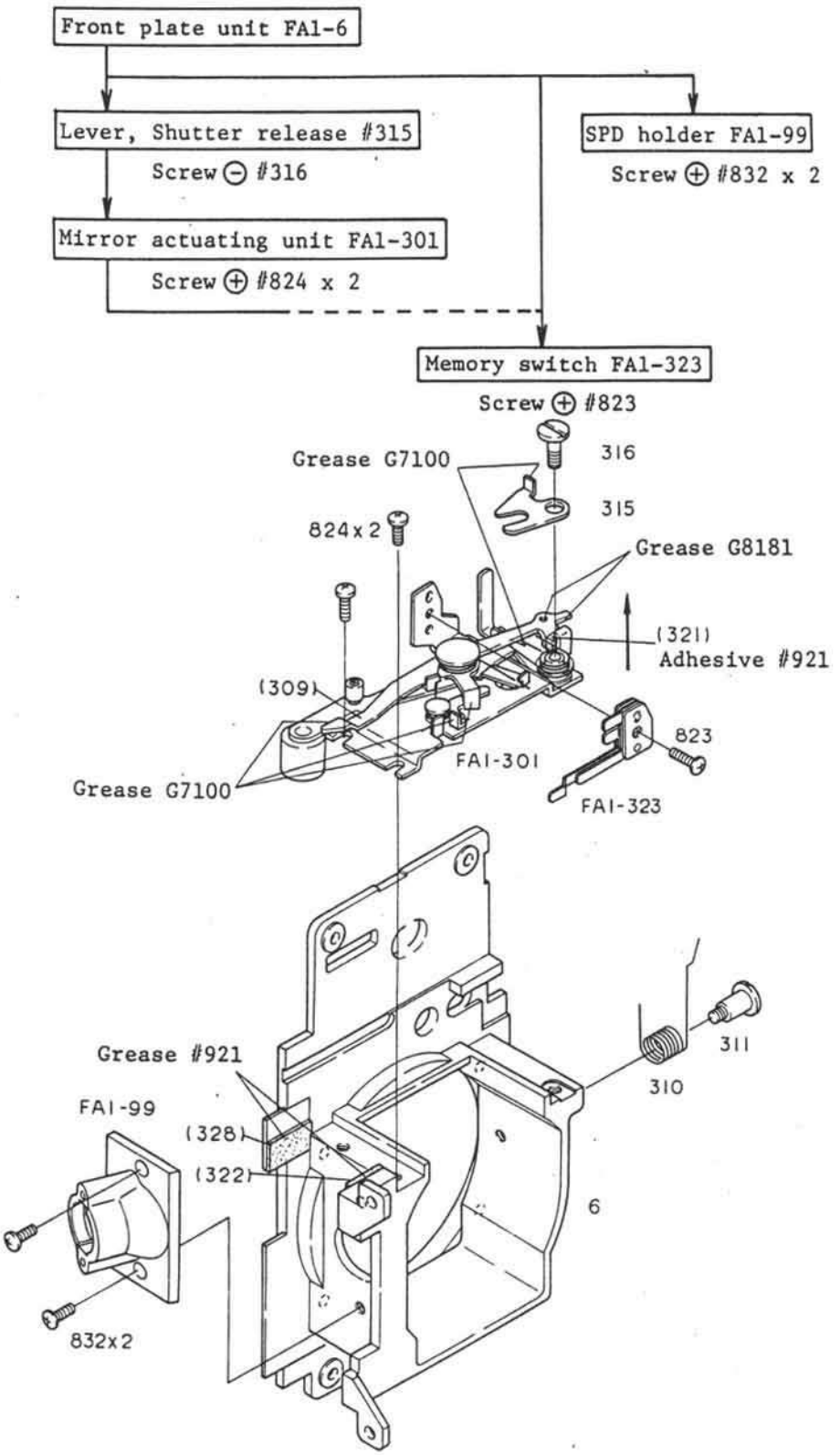
Sprocket Screw #413

Extend #424 through #416. Align the access hole of sprocket with both the oval opening of sprocket gear and the hole of sprocket shaft.

Tightening torque : 1.3kg·cm

V Front Plate

Disassembly Procedure



Assembly Procedure

Front plate (#6)

↓

Spring, lever #310 Screw ⊖ #311

↓

Mirror actuating unit FA1-301

Screw ⊕ #824 x 2

Hook #310 to the hole of #309, with FA1-301 held upward.
Tighten #824 temporarily.

↓

Lever, Shutter release #315 Screw ⊖ #316

Tighten Screw #824 x 2

↓

Memory switch FA1-323 screw ⊕ #823

Tightening torque : 1.5kg·cm

Clearance between contact blades : 0.3 ± 0.05mm

↓

SPD holder FA1-99

Screw ⊕ #832 x 2

Place FA1-99 toward the front of body.

Tightening torque : 1.5kg.cm

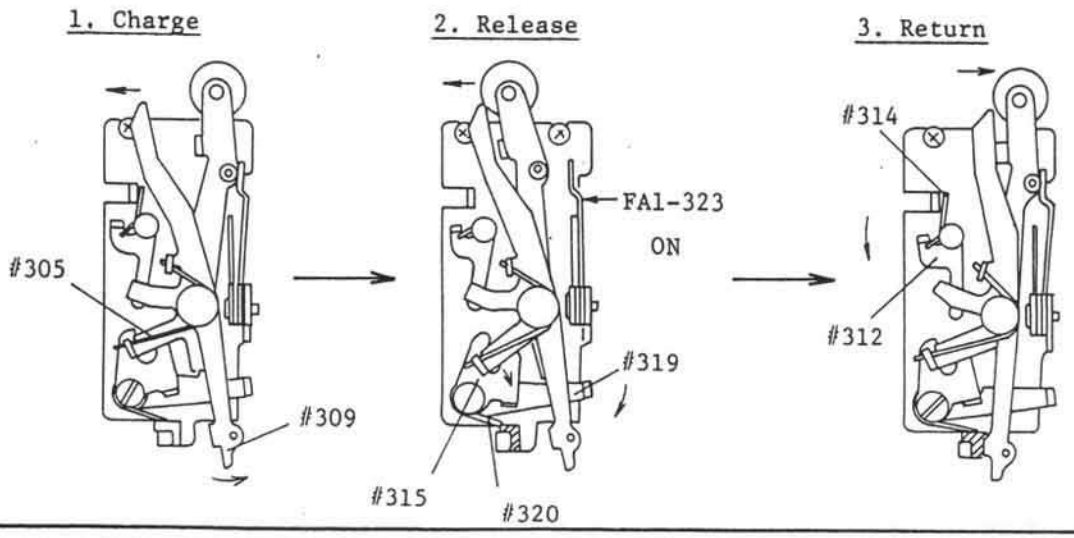
Shutter release delay unit operation

#315 → First release of Shutter (Opening curtain starts to travel.)

#312 → Second release of Shutter (Closing curtain starts to travel.)

FA1-323 → Memory switch

Check and adjustment of front plate unit: Adjustment Section P. All



VI Outer Housing

VI-1 Finder

Disassembly Procedure

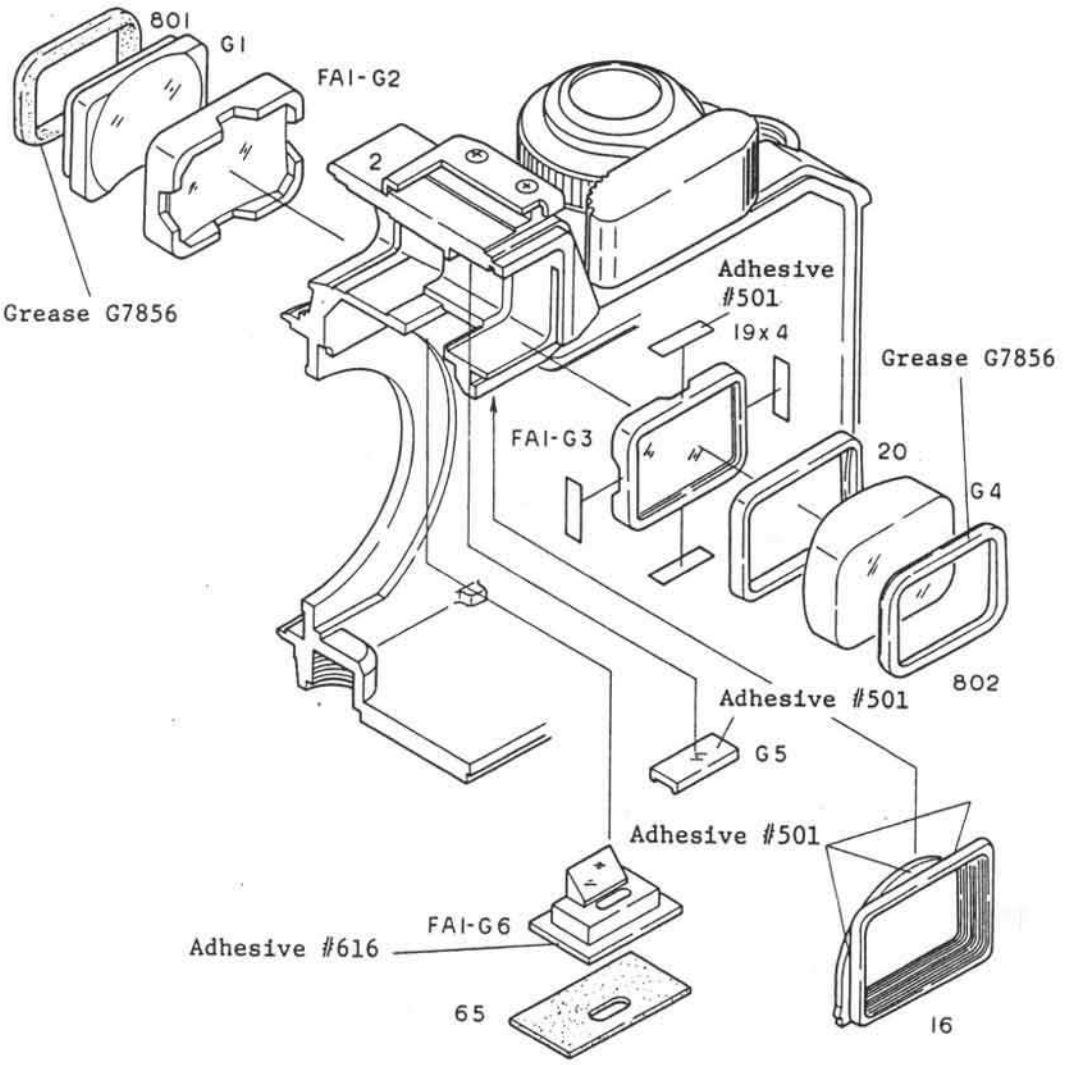
G1, G2

O-ring G1 #801 Tool Use a needle to remove #801.

G3, G4 — G5 Tool Use a needle to remove #802.

O-ring G3 #802

Prism FA1-G6



Assembly Procedure

Outer housing #2

↓

G5 Apply a mat-painting onto the edge and Priobond #510 onto surfaces of both #2 and G5.

↓

FA1-G2 (Refer to Sub-assembly Section P. S4)

↓ Locate the half-mirrored surface toward the eyepiece and the light baffle at the bottom.

G1 Locate the step of G1 toward the eyepiece.

O-ring #801

↓ Press-fit #801 in a corner and then in the other corner on the diagonal.
Locate flat surface of #801 toward the front of camera.

FA1-G3 (Refer to Sub-assembly Section P. S4)

Spacer, viewfinder #19 x 4

↓ Locate the parallax correction frame upward and the half-mirrored surface downward. Parallax adjustment can be made by adding or removing #19. Refer to Adjustment Section P. A12.
After adjustment, use Bond #501 to cement #19.

Retainer G4 #20

↓ Locate the step of G4 toward the eyepiece.

G4

O-ring #802

↓ Locate the concave face toward the eyepiece. Press-fit #802 in a corner and then in the other corner on the diagonal.

Eyepiece, viewfinder #16

↓ Be careful not to allow Priobond to exude outside.

Prism FA1-G6

↓ Refer to Adjustment Section P. A12 [8] for positioning the information film. After adjustment, use Bond #616 to cement all edges of FA1-G6 for air-tight.

Light-shield, LED #65

Note: Replace O-rings #801 and #802 with new ones.

VI-2 Buckle

Disassembly

Buckle B FA1-207

E-snap ring #853 x 2

Pin, buckle #208 x 2

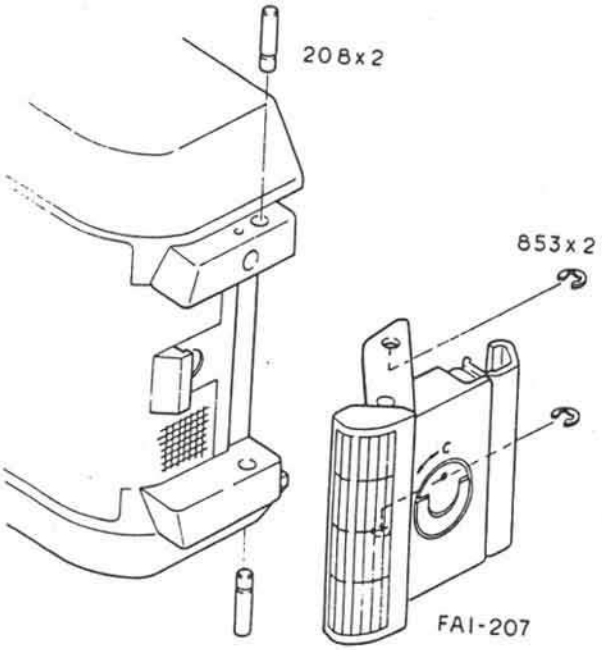
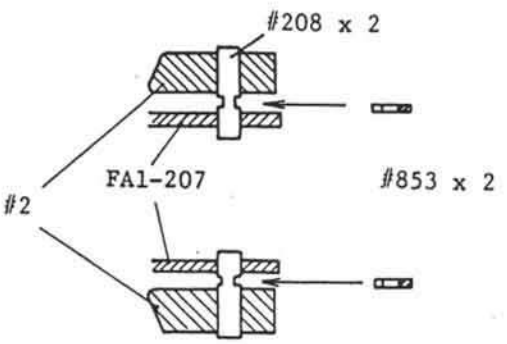


Fig. VI-1

Buckle



Assembly Procedure

Outer housing (#2)

↓

Buckle B FA1-207

↓

Pin, buckle #208 x 2

E-snap ring #853 x 2

Extend #208 x 2 through openings of #2 and FA1-107. Insert then #853 into grooves of #208 through slits between #2 and FA1-207.

Disassembly of FA1-207 is referred to Sub-assembly Section P.S5.

VI-3 Camera Back

Disassembly Procedure

Camera back hinge cover PM1-204

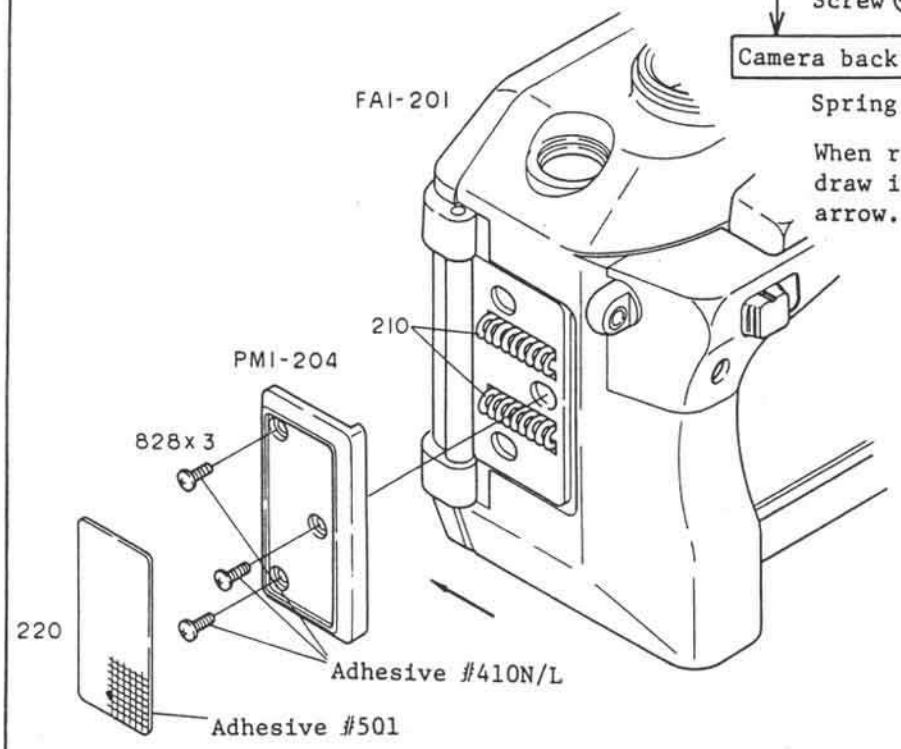
Leatherette, hinge #202 #220

Screw ⊕ #828 x 3

Camera back FA1-201

Spring, camera back #210 x 2

When removing FA1-201, draw it in the direction of arrow.



Assembly Procedure

Outer housing (#2)

↓

Camera back FA1-201

Spring, camera back #210 x 2

↓ Put #210 x 2 into FA1-210 (Fig. VI-2). Hook #210 to protrucions of openings of #2. When installing FA1-2-1, draw it in the direction of arrow.

Camera back hinge cover PM1-204

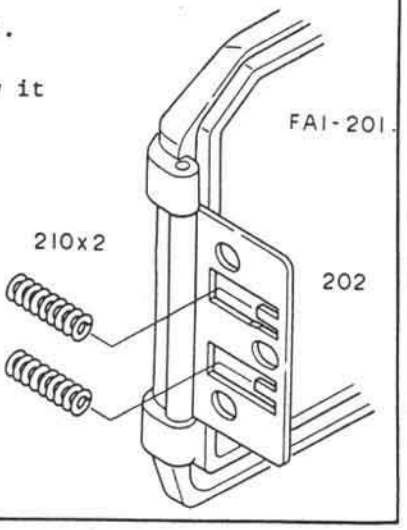
↓ Screw ⊕ #828 x 3

Leatherette, hinge #202 #220

Use Priobond #510 to cement #220.

Fig. VI-2

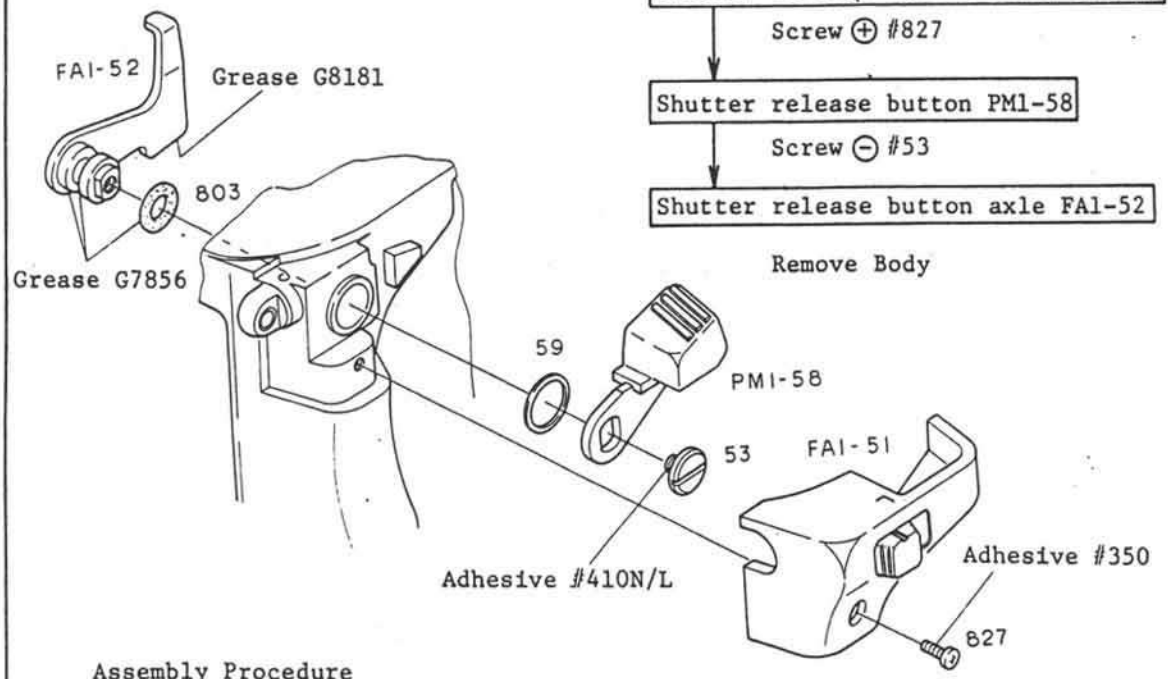
Camera back hinge



VI-4 Shutter Release Button

Disassembly Procedure

Shutter release button cover FA1-51
↓ Screw ⊕ #827
Shutter release button PM1-58
↓ Screw ⊖ #53
Shutter release button axle FA1-52
↓ Remove Body



Assembly Procedure

Outer housing (#2)
↓
Shutter release button axle FA1-52
O-ring, film-advance shaft #803
Do not scratch O-ring.
↓
Washer, axle #52 #59
Shutter release button PM1-58
↓ Screw ⊖ #53
Release button should move smoothly.
Metal parts should not rub against each other under water pressure.
↓
Shutter release button cover FA1-51
Screw ⊕ #827

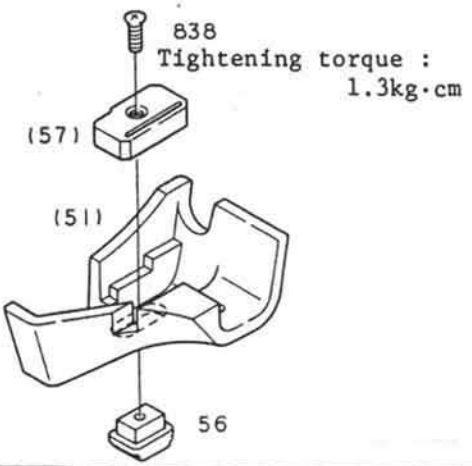
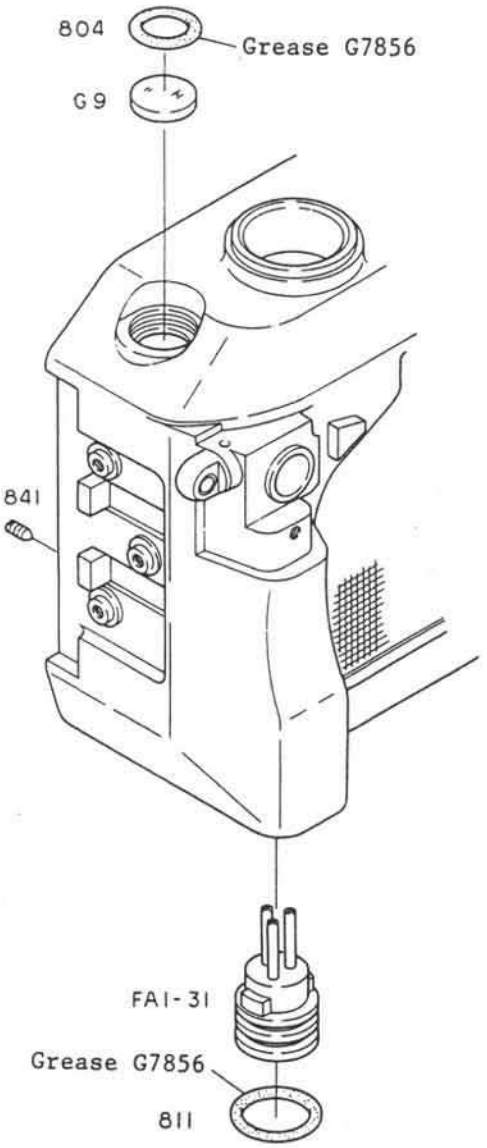


Fig. VI-3 FA1-51

VI-5 Frame Counter Window/Synch Guide Ring



Disassembly Procedure

Frame counter window G9

O-ring, frame counter window #804

Tool: Use a needle to remove G9.

Synch guide ring FA1-31

O-ring, synch terminal #811

Screw ⊖ #841

Unsolder and push FA1-31 outward from inside.

Assembly Procedure

Outer housing (#2)

↓

Frame counter window G9

↓

O-ring, frame counter window #804

Use J15001 to press-fit #804 in a corner and then in the other corner on the diagonal.

Refer to #804 with new one.

↓

Synch terminal guide ring FA1-31

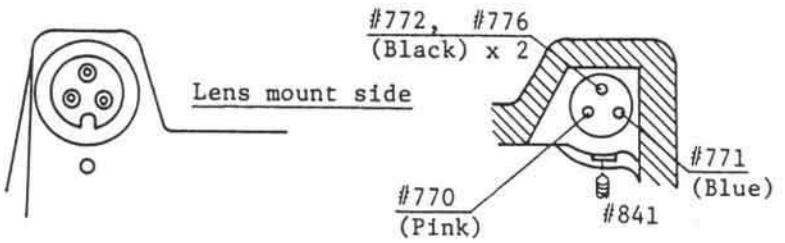
O-ring, Synch terminal #811

Screw ⊖ #841

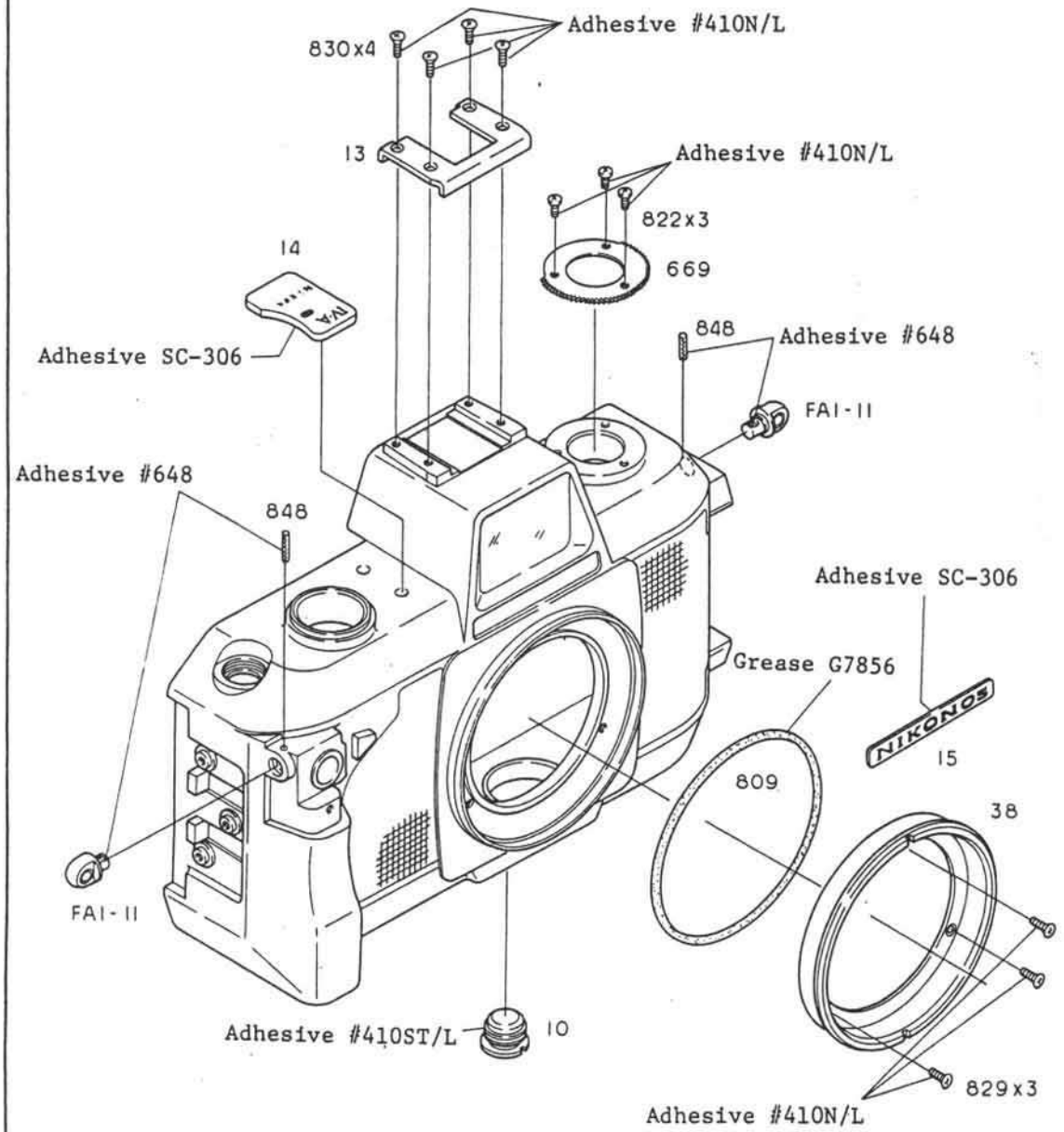
Press-fit #811 around FA1-31 before installation.

Fig. VI-4 shows how to install FA1-31.

Fig. VI-4 Synch guide ring



VI-6 Others



Adhesive SC-360 : Sony bond SC-306

Adhesive 648 : Locktight 648

Outer housing lens mount #38

O-ring, outer housing lens mount #809

Screw ⊕ #829

Make sure that #809 has no scratch.
Apply G7856 slightly onto #809.

Accessory shoe #13

Screw ⊕ #830 x 4

Eyelet FA1-11 x 2

Spring cotter #848 x 2

Apply Lock tight #648 onto FA1-11 and secure it with #848.

Tripod Screw #10

Tightening torque : 5kg·cm or more

Plate, shutter mode selector index #14

Fill Sony bond SC-306 in the hole of Outer housing #2 and apply the same slightly onto surfaces of #2 and #4.
Be careful not to allow the adhesive material to exude outside.

Name plate #15

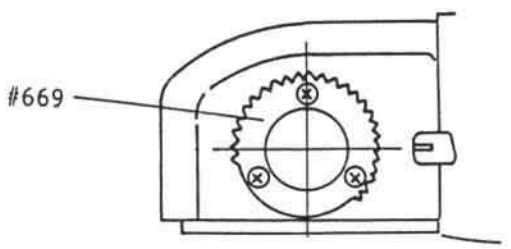
Use Sony bond SC-306 to cement #15.

Click plate, ASA dial #669

Screw ⊕ #822 x 3

Fig. VI-5 shows how to install #669.

Fig. VI-5 #669

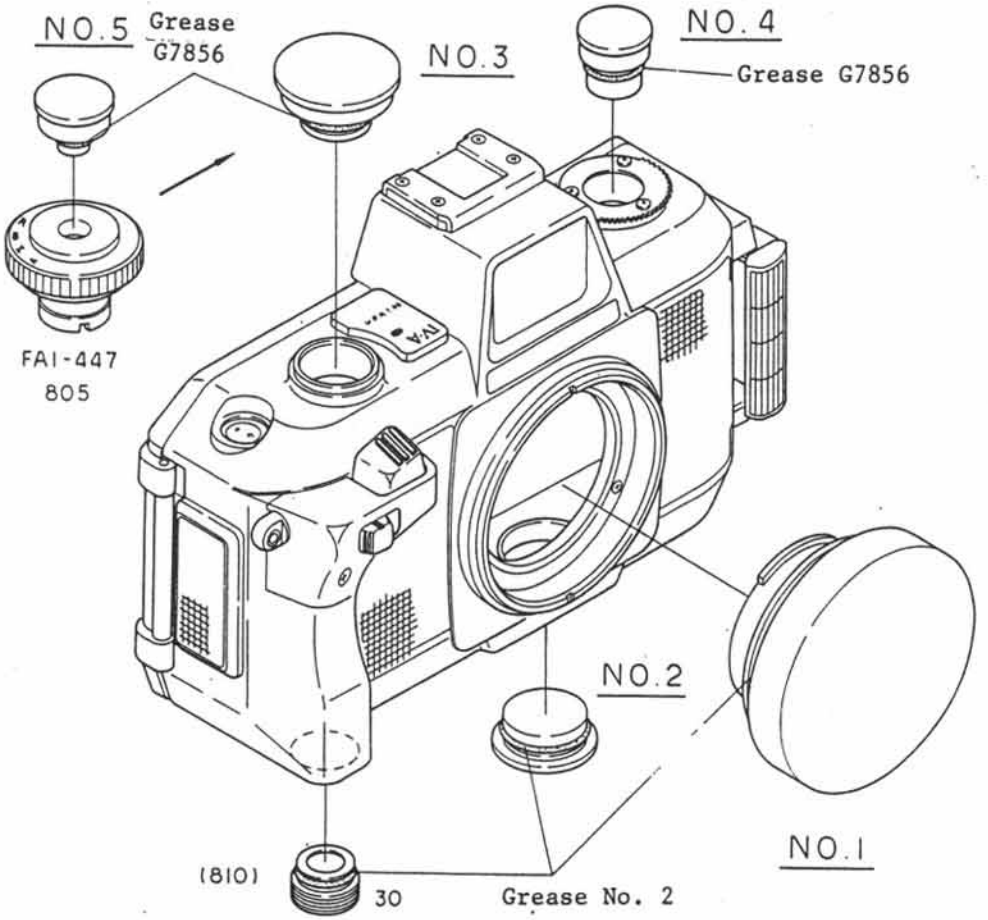


V1-7 Waterproof Test of Outer Housing

Tool: Water tank J18026-1
Waterproof cap J15202-1 - 5

Waterproof of outer housing is tested by J15202; the housing is sealed at lens mount, film-advance lever, shutter mode selector and battery chamber with J15202-1 - 5 respectively. But use #30 to seal synch terminal.

Refer to Tool Manual of J18026-1 for details of testing procedure.



Specification: Keep outer housing in a pressure of 5 kg/cm^2 for 30 min. so as to check that no water leakage can be observed.

Pressure is applied as follows;

Increase ⟶ 5 min.

Decrease ⟶ 7 min.

If pressure is applied rapidly, the crushing of O-rings will cause positively for watertight. Thus pressure should be applied gradually to test O-rings in the same condition as field-use.

Grease No.2:
Daphne Unilex

V Adjustment

[1] Electric Circuit/Shutter Speeds Check and Adjustment

1. Before Check - A1
2. Battery Check-circuit Check and Adjustment - - - - - - - A2
3. Synch Time (A 1/90) Adjustment - - - - - - - - - - - - - A3
4. ASA - γ Adjustment - - - - - - - - - - - - - - - - - - - A3
5. Auto Level Adjustment/Shutter Speeds Check - - - - - - - A3
6. ASA- γ Crossreference Table - - - - - - - - - - - - - A5
7. Auto Shutter Speeds Crossreference Table - - - - - - - - A5
8. LED's Warning Check - - - - - - - - - - - - - - - - - - - A6
9. Manual, Critical speed & Bulb check Bulb Check - - - - A6
10. Synchronization Check - - - - - - - - - - - - - - - - - A6

[2] Film Advance Timing Adjustment - - - - - - - - - - - - - A7

[3] Release Button Switch and Shutter Release Check and Adjustment - A8

[4] Shutter Release Timing Adjustment - - - - - - - - - - - - A9

[5] Flange Focal Distance Check and Adjustment - - - - - - - A10

[6] Front Plate Check and Adjustment - - - - - - - - - - - - A11

[7] Parallax Adjustment - A12

[8] Information Film Positioning - - - - - - - - - - - - - - - A12

[9] Pressure Plate Movement Adjustment - - - - - - - - - - - A13

A0

[1] Electric Circuit/Shutter Speeds Check and Adjustment

1. Before Check

(1) Install the camera body into J15204 and secure it with J15201 x 2.

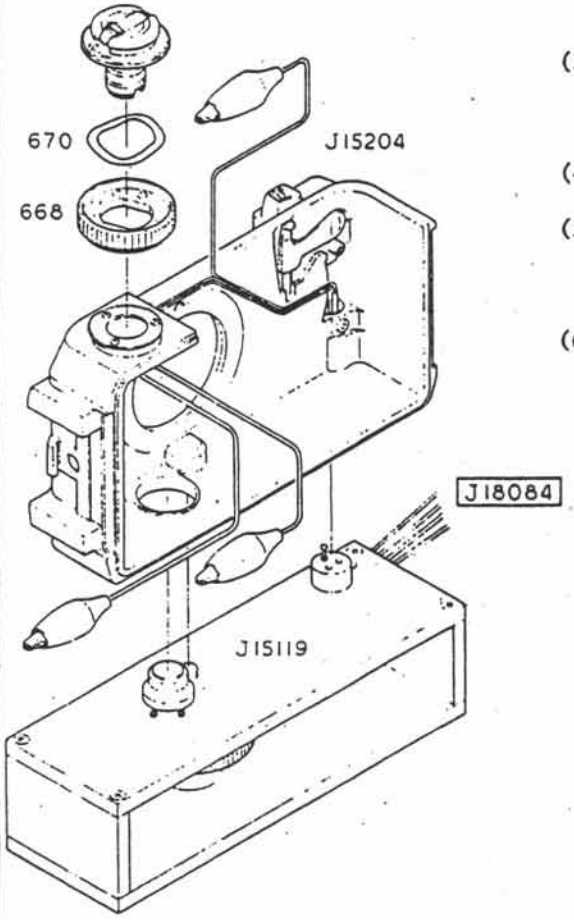
(2) Install ASA dial shaft (Refer to P.D22 for details).

(3) Connect J15204 terminals with IC printed circuit board. (See Fig. [1] - 1)

(4) Install J15199.

(5) Connect J15199 terminals with J18084 (Refer to Tool Instruction Manual for details).

(6) Install J15200 in place and advance frame-counter to "1". It turns on Blank-shot switch.



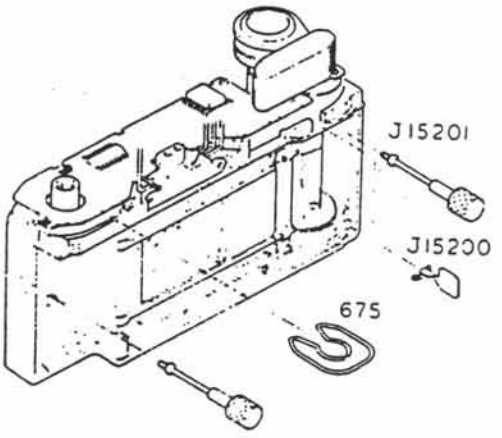
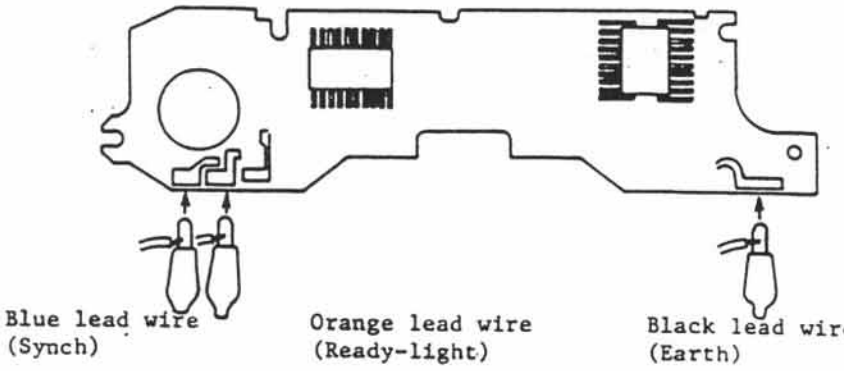
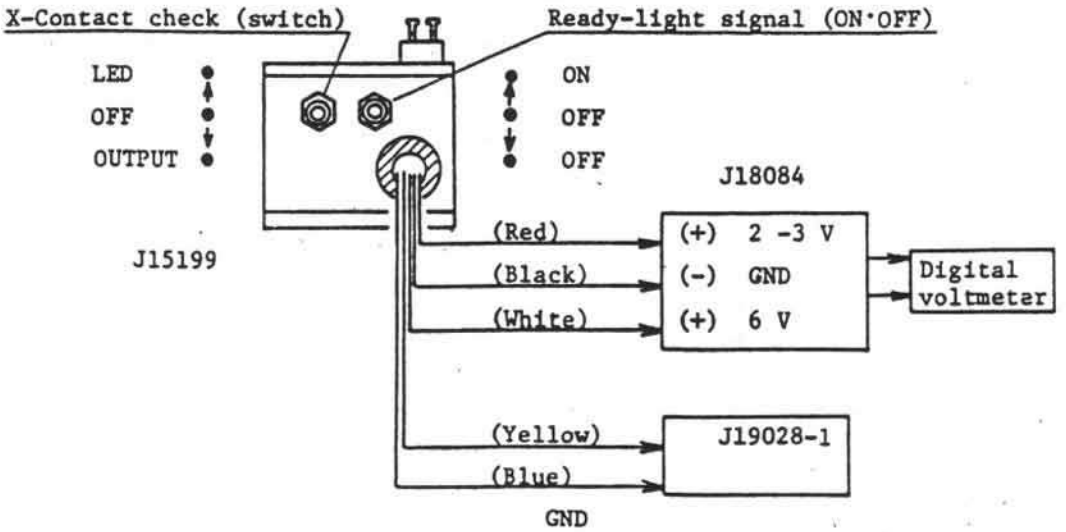


Fig. [1] - 1 Connection of J15204



2. Battery Check Circuit Check and Adjustment



(1) Check

a. Set J15199 Ready-light signal switch to OFF.

b. Turn Shutter mode selector to A and depress Release button halfway.

c. Adjust the voltage of J18084 to 2.68 V and check Meter LED for ON/OFF operation.

d. Adjust the voltage of J18084 to 2.58 V and check that Meter LED remains OFF.

(2) Adjustment

Adjustment can be made by turning Resistor #713 (RV4).
Note thet #713 is factory-adjusted as one unit with circuit board. Adjustment is then necessary only when #713 is turned or replaced with a new one individually. See P. A4 Fig. [1]-2.

a. Adjust J18084 voltage to 2.63 V.

b. Turn RV4 just until LED turns on.

c. Check the circuit again by using the above procedure.

Note: Release button switch should be held closed during checking and adjustment procedure.

3. Synch time (A 1/90) Adjustment

(1) LED-ON

Turn the ready-light signal switch of J15199 to ON to make sure that Meter LED becomes OFF and Ready-light LED becomes ON.

(2) Exposure time measurement

Standard: 9.0 - 11.0ms

(3) Adjustment

Adjustment can be made by turning Resistor #712 (RV3).
Turning RV3 clockwise provides a longer exposure time.

Standard: 10.00 - 10.5ms

After adjustment, turn the ready-light signal switch of J15199 to OFF.

4. ASA - γ Adjustment

When ASA setting is changed from 25 to 400, it should affect shutter speed delivery 4EV (16 times).

Adjustment can be made by turning Resistor #710 (RV1). Turning #710 counterclockwise increases ASA - γ (Affect rate to shutter speed).

Use J18085 or an equivalent lens which is stopped down to f/5.6.
Set Sutter tester J19036 to EV12.

(1) Turn #710 ⟶ ASA: 400 Shutter speed: 1.95ms (1/500 sec.)

(2) Change ASA setting to 25 and then measure shutter speed(TI).

(3) Determine T2 with reference to ASA - γ Cross-reference Table, P. A5.

(4) Turn #710 to adjust shutter speed to T2. See Fig. [1]-2, P. A4.

5. Auto Level Adjustment/Shutter Speeds Check

(1) Shutter speed should be adjusted to 1/125 sec. at EV12 and ASA 100.

Adjustment can be made by turning Resistor #711 (RV2). Turning #711 counterclockwise slows shutter speeds. See P. A4 Fig. [1]-2.

(2) Check ASA - by calculating the proportion between ASA 25=shutter speed 1/30 sec. and ASA 400=shutter speed 1/500 sec..

Standard: 14.9 - 17.1 times (4 $\pm$ 0.1EV)

Adjust ASA - γ again, when necessary.

(3) Check shutter speed delivery with reference to Auto Shutter Speeds Cross-reference Table, P. A5.

Note : ASA - γ · Auto Level Simultaneous Adjustment

It is also possible to make ASA γ and Auto level adjustments simultaneously, since turning Resistor #710 (RV1) increases at ASA 400 setting more than at ASA 25 setting.

(1) Turn RV1 and RV2 to the middle range.

(2) Turn RV1 → ASA : 400 Shutter speed : 19.5ms (1/500 sec.)

(3) Turn RV2 → ASA : 25 Shutter speed : 31.3ms (1/30 sec.)

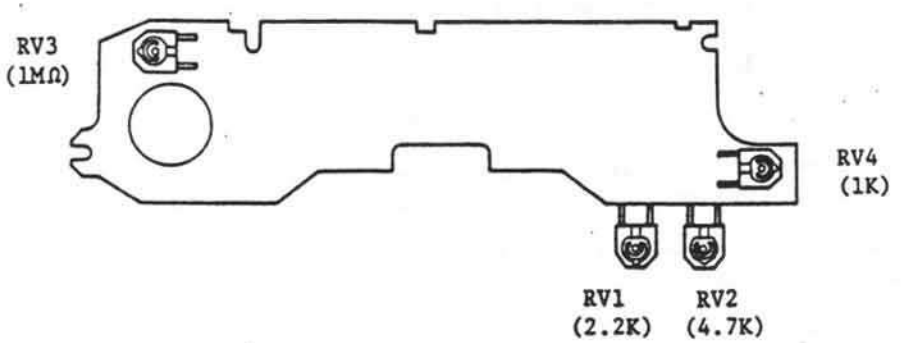
(4) Repeat the procedures (2) and (3) until ASA - γ becomes 14.9 - 17.1 times.

Standard: ASA 400 —— Shutter speed 19.5ms
ASA 25 —— Shutter speed 29.1ms - 33.3ms

(5) Set ASA to 100 and check shutter speed for 1/125 sec. (7.29 - 8.37 ms), When necessary, turn RV2 to make adjustment of 1/125 sec.

(6) Once RV2 is turned in the procedure (5), check ASA- γ again.

Fig. [1] - 2 Variable resistors for adjustments



RV1 : ASA γ

RV2 : Auto Level (ASA Level)

RV3 : Synch Time (A 1/90)

RV4 : Battery Check - circuit

6. ASA-γ Crossreference Table

Brightness EV12 Aperture f/5.6

T1 / 400	25.0	26.0	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
1.90	15.7	17.9	20.3	22.9	25.8	28.9	32.2	35.8	37.7	43.8	48.3
1.95	14.8	16.9	19.1	21.6	24.3	27.2	30.3	33.7	37.3	41.3	45.4
2.00	13.9	15.9	18.0	20.3	22.9	25.6	28.6	31.8	35.2	38.9	42.8
T2											

Procedure

(1) Turn RV2 (#711) to the middle range "A".

(2) Turn #710 ⟶ ASA: 400 Shutter speed: 19.5ms (1/500 sec.)

(3) Change ASA setting to 25 and then measure shutter speed (T1).

(4) Determine T2 with reference to ASA-γ Cross-reference Table.

(5) Turn #710 to adjust shutter speed to T2.

VR2
(#711)

Formula of T2

$$T2 = Ts \times \left(\frac{T1}{TS}\right)^{\alpha}$$

$$\alpha = \frac{R400}{R400 - R25}$$

where T5 : Reference time for ASA 25 and Shutter speed 1/30 (31.25ms)

R25 : Resistance for ASA 25 (Between pins 11-12)

R400: Resistance for ASA400

7. Auto Shutter Speeds Crossreference Table (Inspection Standard)

Brightness	ASA	Nominal Value sec.	Center Value ms.	Range ms.	Standard
LV 9	200	1/30	31.3	22.0 - 44.2	± 0.5 EV
	800	1/125	7.81	5.52 - 11.0	
LV 12	25	1/30	31.3	22.0 - 44.2	
	100	1/125	7.81	5.52 - 11.0	
	400	1/500	1.95	1.38 - 2.76	
	800	1/1000	0.977	0.64 - 1.48	± 0.6 EV
LV 15	25	1/250	3.91	2.76 - 5.52	± 0.5 EV
	100	1/1000	0.977	0.64 - 1.48	± 0.6 EV

Turning RV2 makes adjustment of 1/125 sec. at LV12 and ASA100.
Standard : 7.81ms ± 0.1 EV (7.92 - 8.37 ms).

8. LED's Warning Check

(1) Slowest speed warning (approx. 1/25 sec.)
Turn ASA dial until LED begins to blink. (cf. EV9 ASA200)
Measure shutter speed; standard : 25.4 - 51.5ms

(2) Highest speed warning (approx. 1/1000 sec.)
Turn ASA dial until LED begins to blink.(cf. EV15 ASA100)
Measure shutter speed. Standard: 0.41 - 1.48ms

(3) Adjustment
When the warning fails to operate within the standard, repeat the adjustment procedures 3, 4 and 5, P.A3.

9. Manual, Critical speed & Bulb check

(1) M (1/90 sec)
Turn shutter mode selector to M and measure shutter speed.
Standard : 9.1 - 13.6ms.

(2) Critical speed
Turn shutter mode selector to A and remove the batteries.
Next, measure shutter speed.
Standard : 0.49ms or more.

(3) Bulb
Shutter should deliver Bulb when turning shutter speed selector slowly to B.

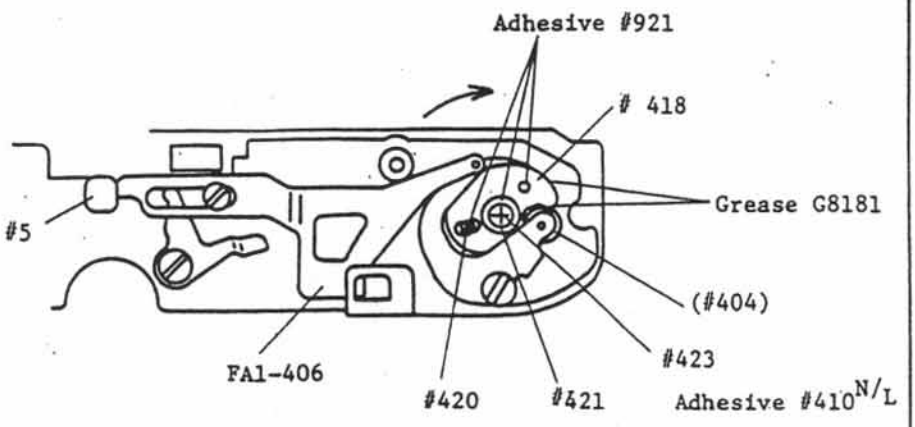
10. Synchronization Check

(1) Use J15199 to check synch contact.

(2) Turn J15199 Change-over switch to Output and connect with J19028-1.

Standard : Time lag 0.3-1ms
Full opening time 1.5ms or more
Contact efficiency 55% or more
Insulation resistance 30 M or more

[2] Film Advance Timing Adjustment



I. Adjustment

(1) Hold film-advance lever at advanced position.

(2) Rotate spool in the reverse direction to film-advance, as shown in the figure, and hold it stopped.

(3) Loosen #423 and rotate Adjusting pin, #420 to allow #418 to slightly come in contact with #404.

(4) Apply Adhesive (#410 N/L) onto screw thread of #423 and tighten #423. Tightening torque : 2.8-3.2 kg·cm

(5) Apply Lock tight #921 onto the following parts:
Adjusting Pin #420 (lower part)
Washer #421 (circumference)
Adjustor, #418 (hole inside)

(6) Apply grease G8181 onto the following parts:
Take-up cam FA1-401 (circumference)
Adjustor, #418 (top circumference)

2. Check

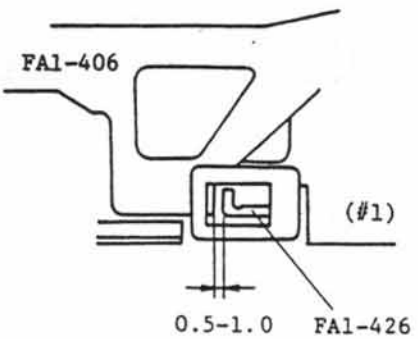
(1) Use fingers to hold sprocket and spool slightly. Next, stroke film-advance lever slowly.

Make sure that #404 engages with #418 when film-advance is completed.

(2) Clearance between Shutter charge lever FA1-406 and Shutter release lever FA1-426 after film-advance completion
Standard: 0.5 - 1.0mm

See Fig. [2]-1

Fig[2]-1 Film-advance completed



[3] Release Button Switch and Shutter Release Check

Tool Slide caliper and Volt-meter

1. Rlease button switch

   (1) Connect Lead wires #766 (Pink) and #769(Brown) with Volt-meter.
   (2) Measure movement of Shutter release lever FA1-426. Depress release button slowly until release button switch closes..
   Standard : 0.9-1.1mm
   (3) Adjustment can be made by turning the eccentricity of Adjusting pin #435.
   Turning #435 counterclockwise reduces the movement length.

2. Shutter release

   (1) Charge shutter and measure movement of Shutter release lever.

   Standard: Release button SW=ON → Shutter release: 2mm or more

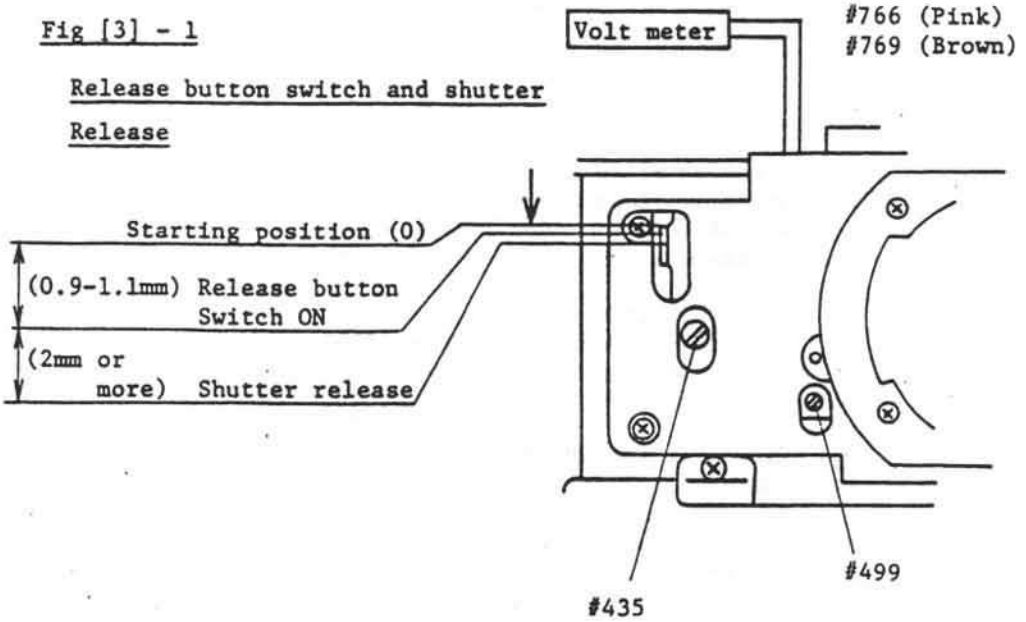
   Start position → Shutter release: 2.9 - 2.1mm

   Whole stroke of shutter release lever: 3.9mm

   (2) Adjustment can be made by turing the eccentricity of Pin #499. Turning #499 counterclockwise reduces the necessary movement for shutter release. After adjustment, apply Lock tight #921 onto #499.

Fig [3] - 1

Release button switch and shutter Release



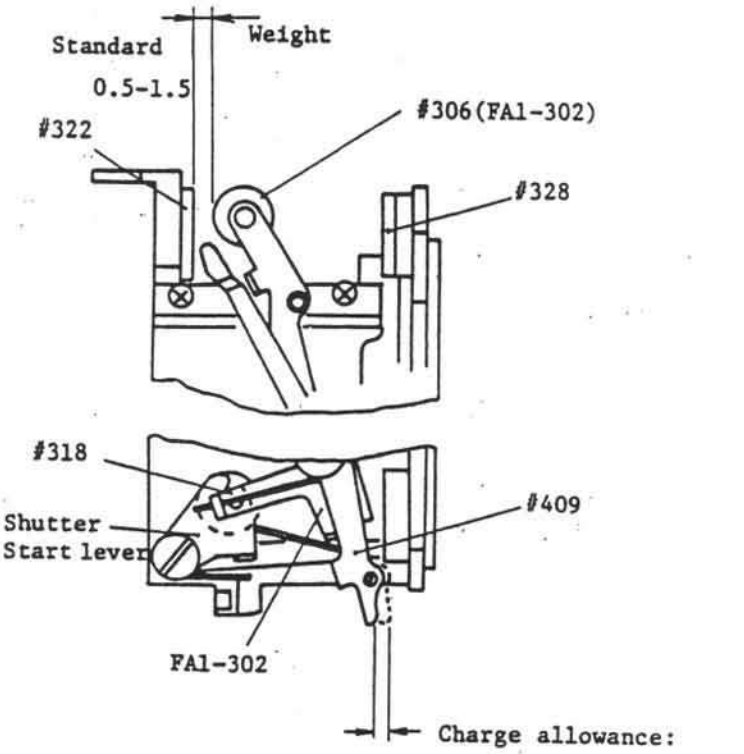
[4] Shutter Release Timing Adjustment

Tool Slide calipers

After shutter is charged, use a finger to hold Weight #306. Depress release button, and allow #306 to move slowly until shutter releases. Next, measure clearance between #306 and #322 at the shutter release.

Standard: 0.5 - 1.5mm

Adjustment can be made by turning eccentricity of Pin #318. Turning #318 counterclockwise increases the clearance between #306 and #322.
After adjustment, apply Lock tight #921 onto #318.



[5] Flange Focal Distance Check and Adjustment

Tool J18025, J19004, J15011, Wood-hammer etc.

1. Check

Mount test camera body. Use J19004 to measure the following. See Fig. [5] - 1.

Distance from bayonet mount to outer film-guide rail : 27.02 ± 0.04mm
Parallel deviation between inner and outer film-guide rails : 0.04mm
Difference between inner and outer film-guide rails : 0.23 ± 0.02mm

2. Adjustment

When the measurement is shorter than the standard, add Washer #37 between Bayonet mount ring #21 and front plate. See Fig. [5] - 2.

When the measurement is longer than the standard, patt J15011 on the film-guide rails with a wood-hammer.

Fig [5] - 1 Measuring points

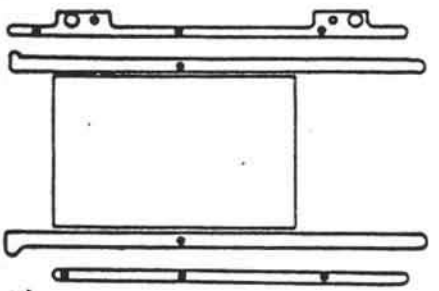
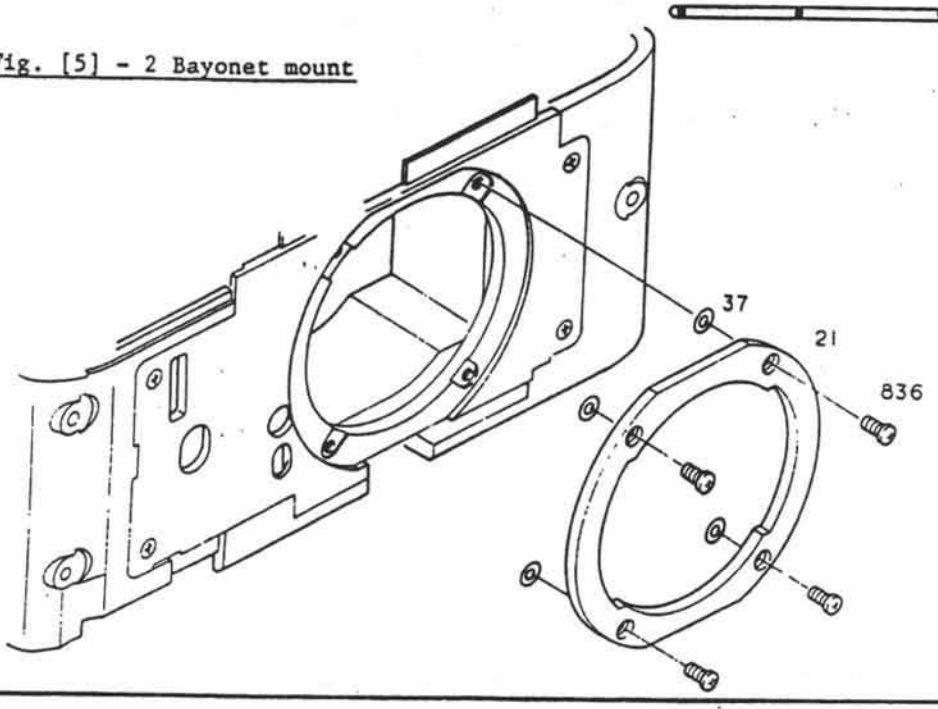


Fig. [5] - 2 Bayonet mount

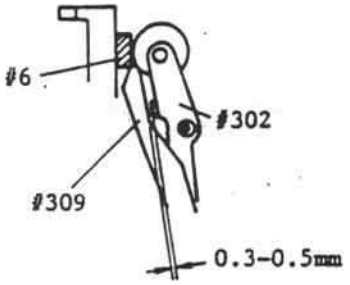


[6] Front Plate Check and Adjustment

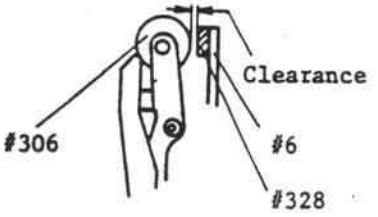
1. Shutter release delay unit FA1-301

(1) Check
When shutter released, clearance between #302 and #305 should be 0.3-0.5mm. When shutter charged, clearance should be provided between #328 and #306.

a Shutter-released



b Shutter-charged



(2) Adjustment can be made by re-positioning FA1-301. Edge of FA1-301 shoud not extend from front plate, when FA1-301 is placed toward the back of camera body.

2. Memory switch

Tool : J-15203, slide caliper, voltmeter etc.

(1) Check

a. Connect Leas wires #761/762 to voltmeter.

b. After charging shutter, connect J-15203 to the screwholes for SPD holder FA1-99. Place Weight #306 slightly toward J-15203, and turn J-15203 until it comes in contact with #306.

c. After releasing shutter, reverse J-15203 until memory switch closes. Measure movement of #306 in this operation

At fourth calibrations : Memory switch remains off.
At fifth " : " " turns on.

Clearance between switch blades : 0.2 - 0.4mm

cf. J-15203 Pitch 0.5mm
Increment 0.125mm
Contact pressure 12

(2) Adjustment

Adjustment can be made by turning Pin #307. Turning #307 counterclockwise increases clearance between switch blades. After adjustment, apply Lock tight #921 onto #307.

[7] Parallax Adjustment

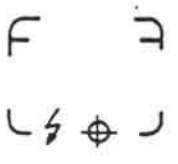
Tool J-18087, J-18033
W-Nikkor 35/2.5 as standard lens. Set focusing ring to 0.8mm.

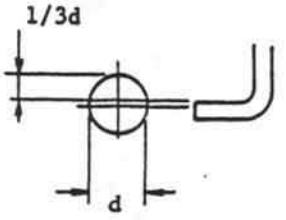
Adjustment

1. Install inner body onto outer housing.
2. Hold shutter open on Bulb.
3. Install J-18033 into aperture and make a centering.
4. Install four Spacer #19a into each side of FA1-G3 respectively. Replace G4, Retainer #20 and Eyepiece #16.
5. Use J-15205 to observe parallax.
6. Adjustment can be made by adding or removing #19.
7. After adjustment, apply adhesive material #501 onto #19.

[8] Information Film

1. 1/3d of ○ locates inside of viewfinder frame for horizantal positioning.
2. Adjustment can be made by adding or removing Spacers #19a-d. When #19 is installed at the side of lens mount, information film changes its position downward.
3. After adjustment, apply Lock-tight L921 onto information film.
4. Use adhesive material #616 to seal Prism FA1-606.





standard : 0-1/2d

[9] Pressure Plate Movement Adjustment

Tool: Torque gauge J5019

(1) Closing power Standard: 200 - 400g

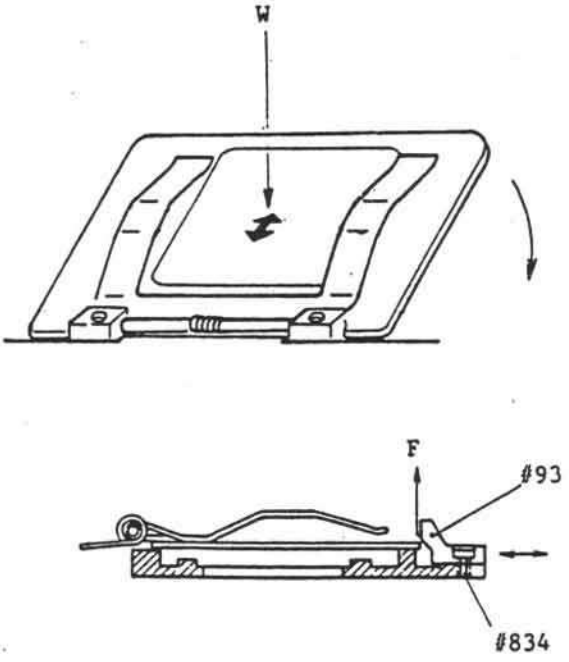
(2) Opening power Standard: more than 60g

(3) Adjustment can be made by loosening Screw #93 and re-locating pressure plate.

(4) Tightening torque of Screw #834: 0.3kg·cm

Apply Adhesive #350 after #834 is loosened.

(5) See if pressure plate is latched to close when replacing camera back.



VI Sub-assembly

[1] ASA Dial Shaft - S1

[2] Film-advance Unit (1) - - - - - - - - - - - - - - - - - - S2

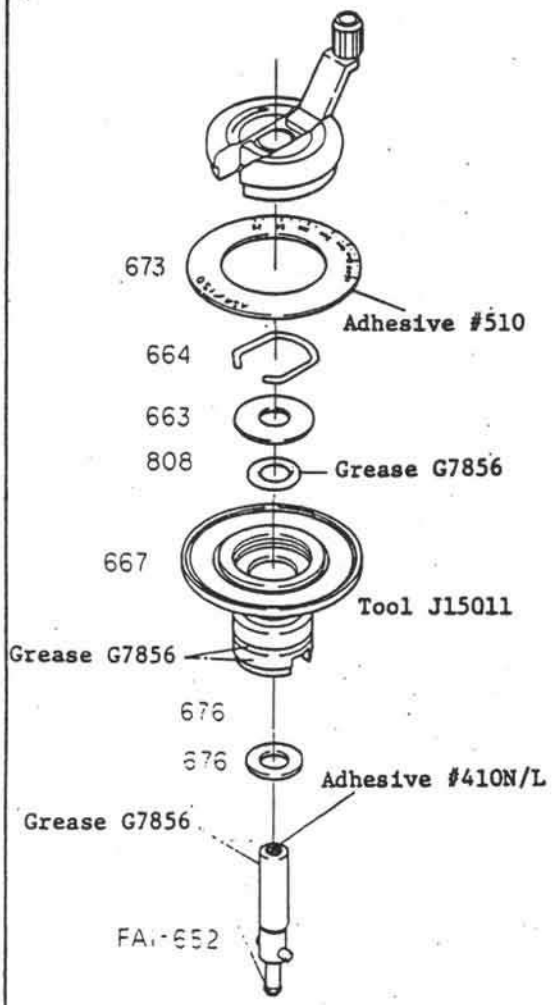
[3] Film-advance Unit (2) - - - - - - - - - - - - - - - - - - S3

[4] G2 (FA1-G2) - S4

[5] G3 (FA1-G3) - S4

[6] Buckle B (FA1-207) - - - - - - - - - - - - - - - - - - - S5

[1] ASA Dial Shaft



ASA Dial shaft #667

↓

O-ring, rewind shaft #808

Use a nylon rod to install #808.

↓

Washer, rewind shaft O-ring #663

Put rounded side of #663 against O-ring.

↓

Stopper, rewind shaft O-ring #664

Put #664 into groove of #667.

↓

Rewind shaft FA1-652

Washer, rewind clutch #676

↓

ASA Dial #673

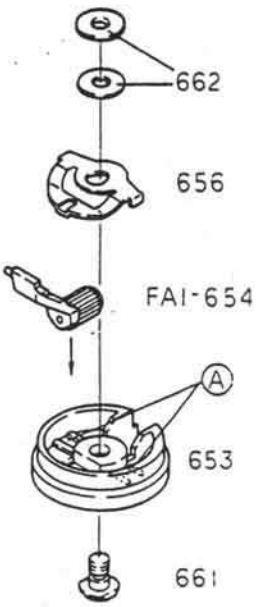
Before cementing #673, replace #667 onto camera body to align the calibrations with the pointer.

↓

Rewind knob

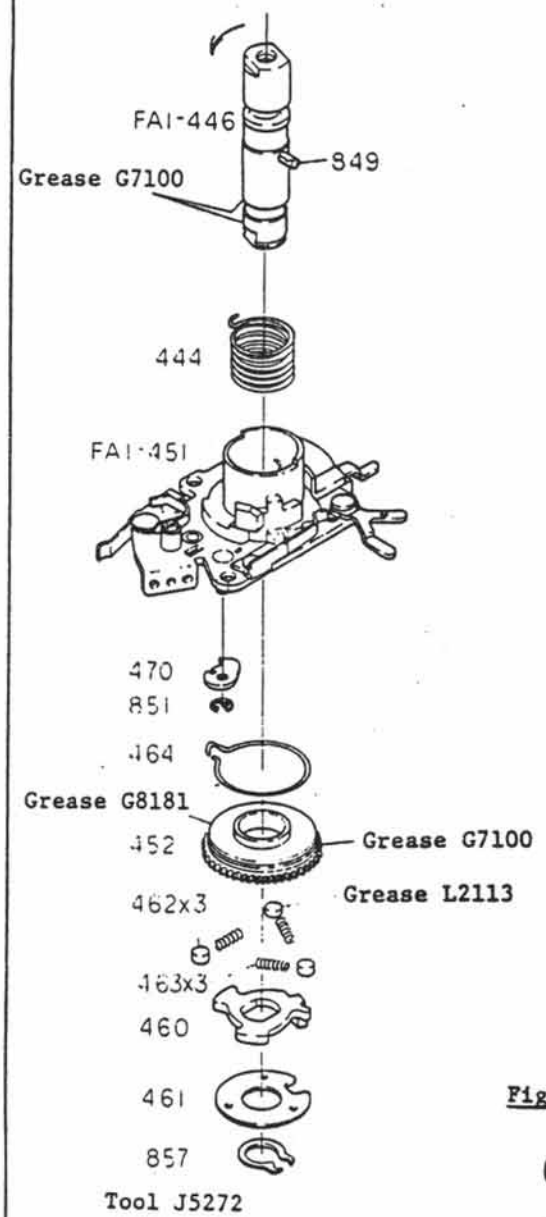
See Fig. [1] - 1

Fig. [1] - 1 Rewind knob



Insert bended end of #656 into A of #653.

[2] Film-advance Unit (1)



Film-advance unit FA1-451

Film-advance lever spring #444

Use a fingernail to tilt #444 in the barrel of when installing it.t. Put end of #444 into opening of barrel.

Film-advance shaft FA1-446

Hook #444 to longer protruded side (2.4mm) of #849. Turn FA1-446 one turn counterclockwise and then re-hook #444 to the cutout.

Film-advance gear #452

Reverse stopper spring #464

Fit #464 in groove of #452.

Clutch cam #460

Film-advance cam roller #462 x 3

Cam roller spring #463 x 3

Fig. [2] - 1 shows how to install #462 and #463.

Film-advance cam cover #461

Snap ring, film-advance shaft #857

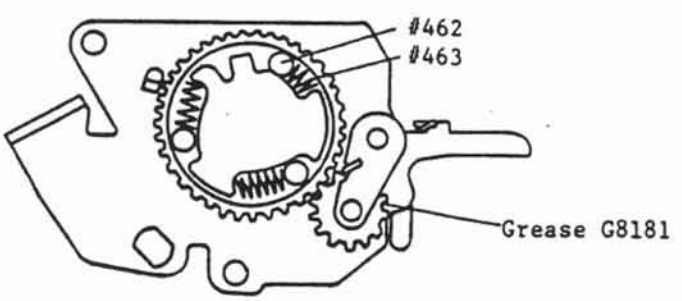
#857 should encircle FA1-446 properly; opening of #857 positions at cut-off of FA1-446.

Reverse stopper claw #470

E-snap ring #851

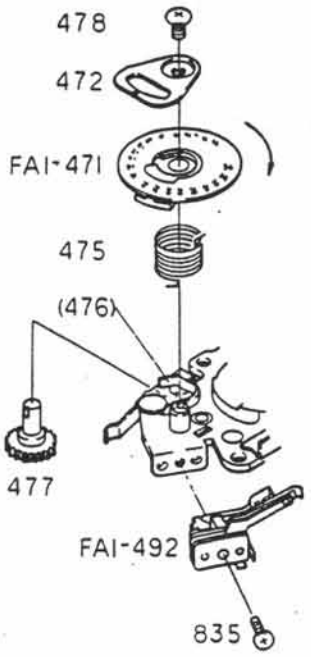
Hook bended end of #464 to groove of #470.

Fig. [2] - 1 Film-advance cam assembly



Position #463 so that they come in contact with #462 properly and then place the other end of #463 along #460.

[3] Film-advance Unit (2)



Film-advance unit FA1-451

↓

Frame counter spring #475

Hook one end to cutout of FA1-451.

↓

Frame counter ratchet FA1-471

Hook the other end of #475 to opening of #471.

↓

Frame counter index plate #472

Screw ⊕ #478

Replace FA1-451 and FA1-471 onto camera body to align the calibrations of FA1-471 with the index of #472.

↓

Frame counter gear #477

With #476 put aside, insert #477 as long as it will go.

After turning FA1-471 clockwise two full turns, engage #477 with it.

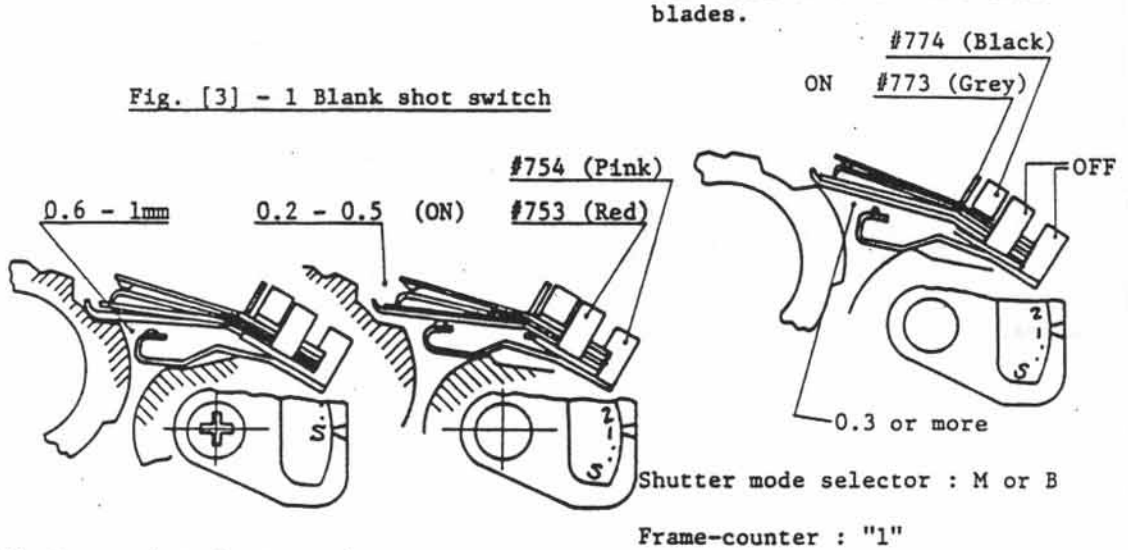
↓

Blank shot switch FA1-492

Screw ⊕ #834

Fig. [3] - 1 shows operation and clearance between switch blades.

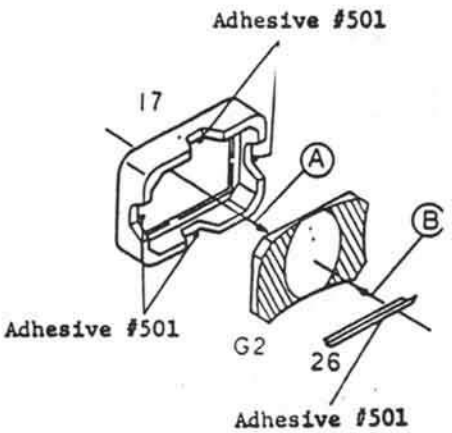
Fig. [3] - 1 Blank shot switch



Shutter mode selector : A
Frame-counter : "S" → "1"

Shutter mode selector : M or B
Frame-counter : "1"

[4] G2 (FA1-G2)



Retainer, G2 #17

↓

G2

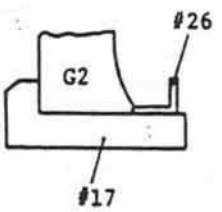
Paint edges in black.
Install G2 into #17 carefully and apply adhesive material into cutouts of #17.

A G2 flat surface
B Half-mirrored surface

↓

Light-shield, G2 #26

Cement #26 on #17 in parallel with its edge.



[5] G3 (FA1-G3)

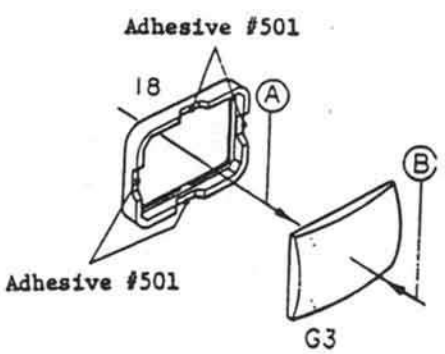
Retainer, G3 #18

↓

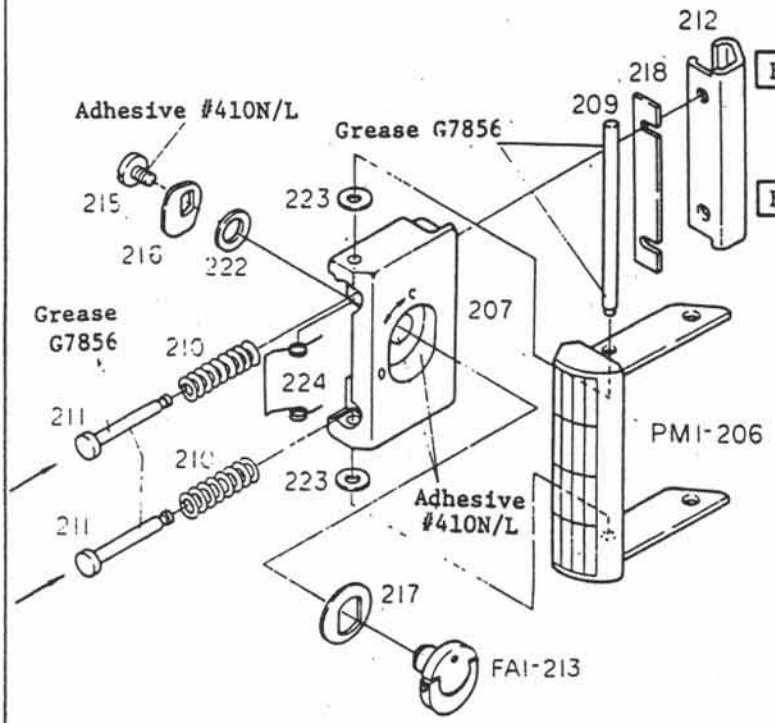
G3

Paint edges in black.
Install G3 into #18 carefully and apply adhesive material into cutouts of #18.

A Finder-field frame coated
B G3 convex surface



[6] Buckle B (FA1-207)



Disassembly Procedure

Lock knob

Screw ⊖ #215

Buckle A lever

Lift off #209, with the caulked head patted.

Buckle claw

Guide, buckle claw #218

Lift off #218, with #211 strongly in the direction of arrow pushed.

Assembly Procedure

Lock knob

Buckle B #207

↓

Lock knob FA1-213

Spring, lock knob #217

↓

Washer, lock knob #222

Plate, lock knob #216

Screw ⊖ #215

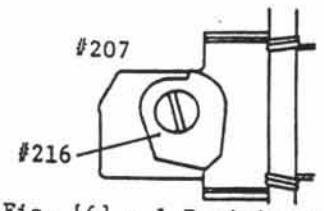


Fig. [6] - 1 Position of #216 (at c)

Buckle claw

Buckle B #207

↓

Guide pin, spring #210 #211

Spring, camera back #210

↓

Buckle claw #212

Guide, buckle claw #218

Push #211 strongly in the direction of arrow until the grooves extend through openings of #212 and then put #218 to #211.

Buckle A lever PM1-206

Spring, Buckle B #224

Washer, Buckle B #223 x 2

Caulk the end (*) of #209.

VII Electrical Troubleshooting

[1] Troubleshooting Procedure - - - - - - - - - - - - - - - E1

[2] Battery Check - E1

[3] Tool - E1

[4] Switches - E2

[5] Operation of Switches - - - - - - - - - - - - - - - - - E2

[6] Parts in Troubleshooting

1. Lead Wires - E3
2. Abbreviation - E3
3. Main Parts - E4
4. IC Printed Circuit Board - - - - - - - - - - - - - - E6

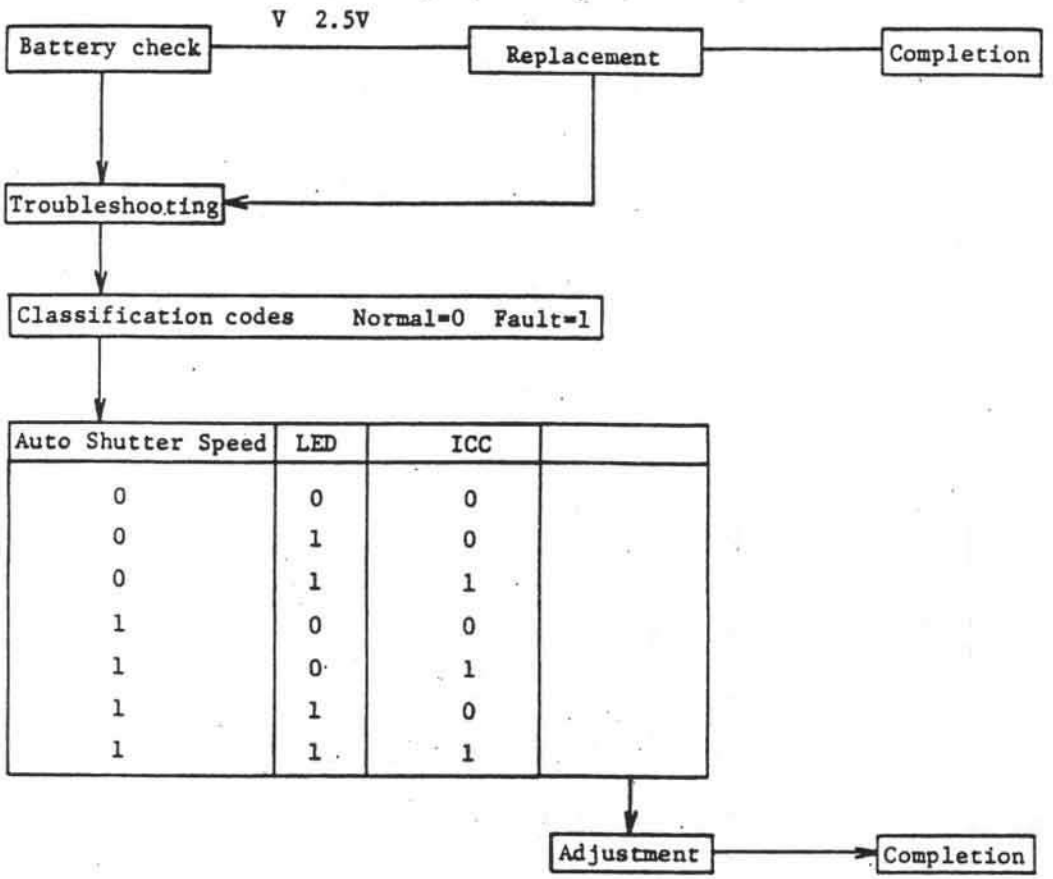
[7] Voltages of IC Printed Circuit Board - - - - - - - - E7

[8] Circuit Diagram - E8

[9] Troubleshooting Chart

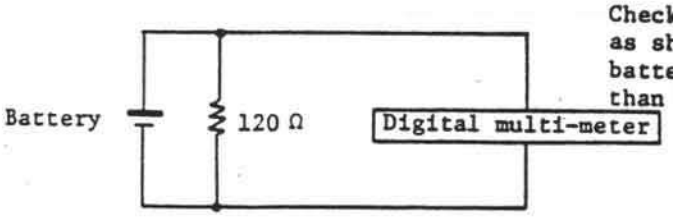
1. Code 0 0 0 - E9
2. " 0 1 0 - E11
3. " 1 0 0·1 0 1 - - - - - - - - - - - - - - - - - E13
4. " 1 1 0 - E15
5. " 1 1 1 - E16

[1] Troubleshooting Procedure



Auto Shutter Speed	LED	ICC	
0	0	0	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

[2] Battery check



Check the batteries installed as shown in the figure. Replace batteries when the voltage is less than 2.5V.

3V · 25mA

2.5V · 21mA

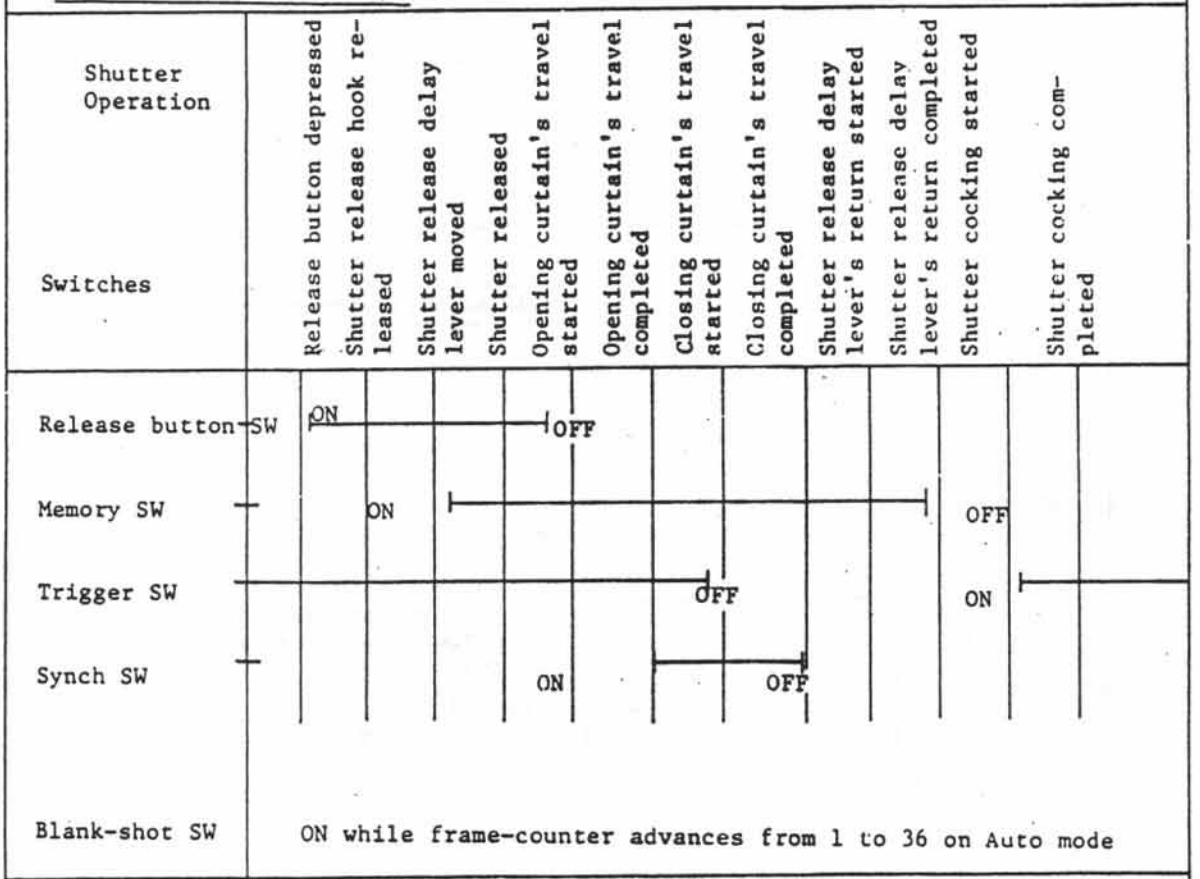
[3] Tool

Use the tools; J18084, J9004 and J15199. Before testing, set film-speed to ASA100 and aperture to f/5.6.

[4] Switches

Name	Operation	Location
Blank-shot SW	Circuit is ready for ON	Film-advance base plate
Release button SW	Meter/ Warning/ 20 sec.-hold	Shutter/body
Memory SW	Electromagnet charge/Meter read-out memory/LED-OFF	Front plate
Trigger SW	Shutter speed delivery	Shutter
Ready-light SW	LED ready light-ON on M or B mode	Film-advance base plate
Synch SW	Speed-light flash	Shutter

[5] Operation of Switches



[6] Parts in Troubleshooting

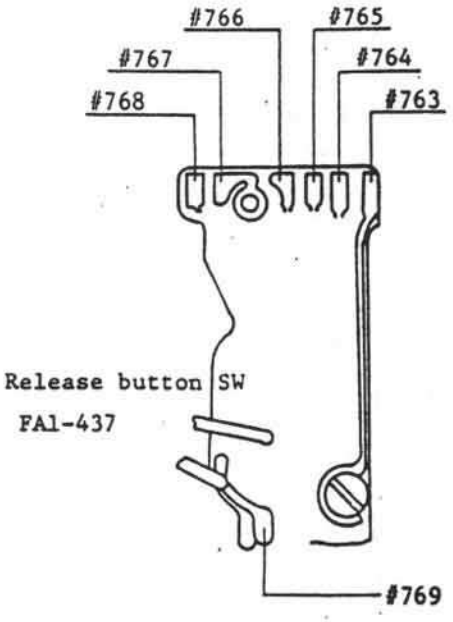
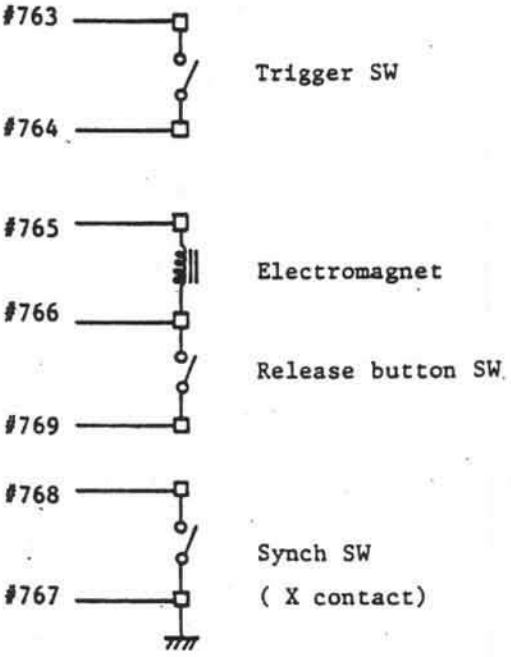
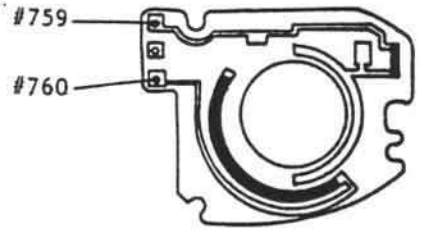
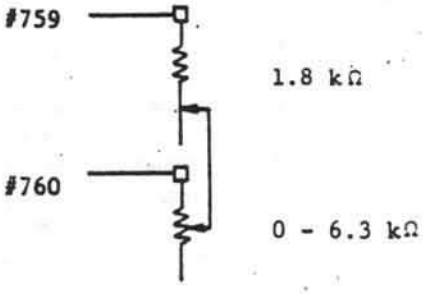
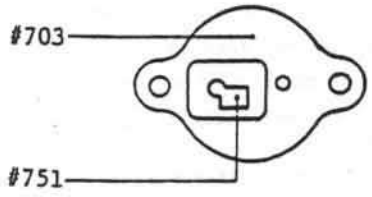
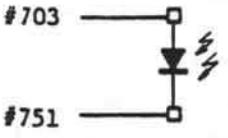
1. Lead Wires

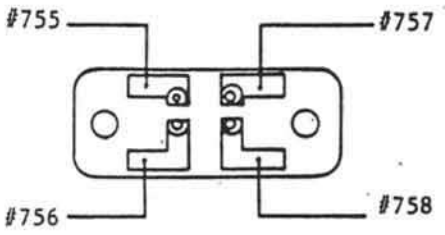
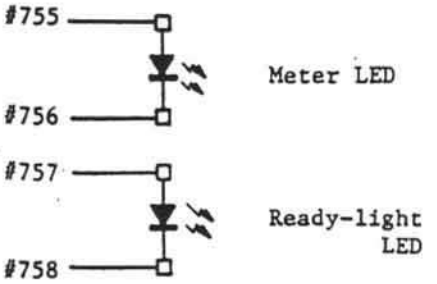
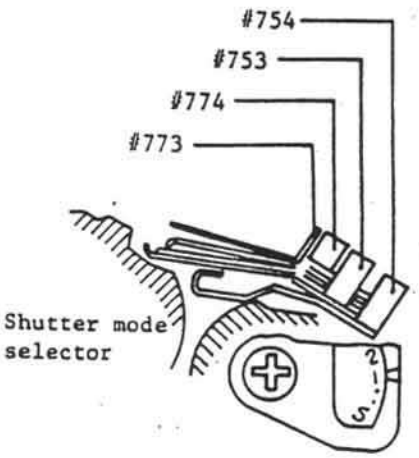
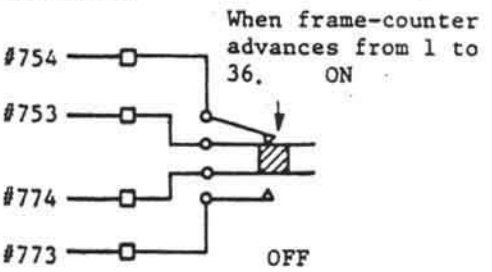
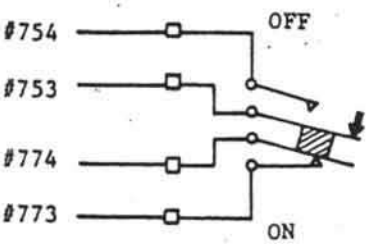
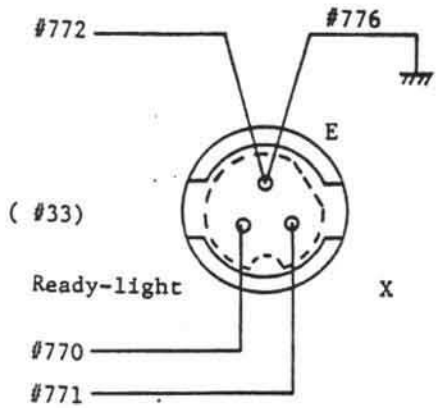
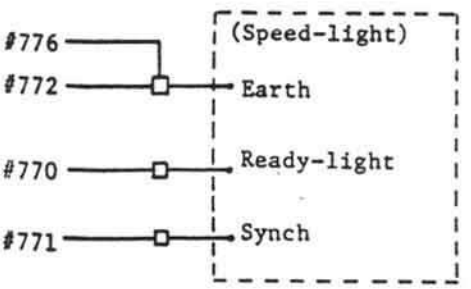
Number	Color	Name	Location	
750	Red	Lead wire A, SPD	FA1-708	FA1-701
751	White	Lead wire B, SPD	"	"
752	Black	Lead wire A, earth	FA1-45	"
753	Red	Lead wire, power	FA1-43	FA1-492
754	Pink	Lead wire, blank-shot SW	FA1-492	FA1-701
755	Pink	Lead wire A, LED	FA1-72	"
756	Green	Lead wire B, LED	"	"
757	Orange	Lead wire A, ready-light LED	"	"
758	Grey	Lead wire B, ready-light LED	"	"
759	Yellow	Lead wire A, ASA base plate	FA1-683	"
760	Purple	Lead wire B, ASA base plate	"	"
761	Pink	Lead wire A, memory SW	FA1-323	"
762	White	Lead wire B, memory SW	"	"
763	Yellow	Lead wire A, trigger SW	FA1-100	"
764	Purple	Lead wire B, trigger SW	"	"
765	Green	Lead wire A, electro-magnet	"	"
766	Pink	Lead wire B, electro-magnet	"	"
767	Black	Lead wire B, earth	"	"
768	Blue	Lead wire A, synch terminal	"	"
769	Brown	Lead wire, release button	"	"
770	Orange	Lead wire, ready-light	FA1-31	"
771	Blue	Lead wire B, synch terminal	"	"
772	Black	Lead wire C, earth	"	"
773	Grey	Lead wire A, ready-light SW	FA1-492	"
774	Black	Lead wire B, ready-light SW	"	"
775	Brown	Jumper cord	FA1-701	"
776	Black	Lead wire, outer housing earth	FA1-31	(#2)

2. Abbreviation

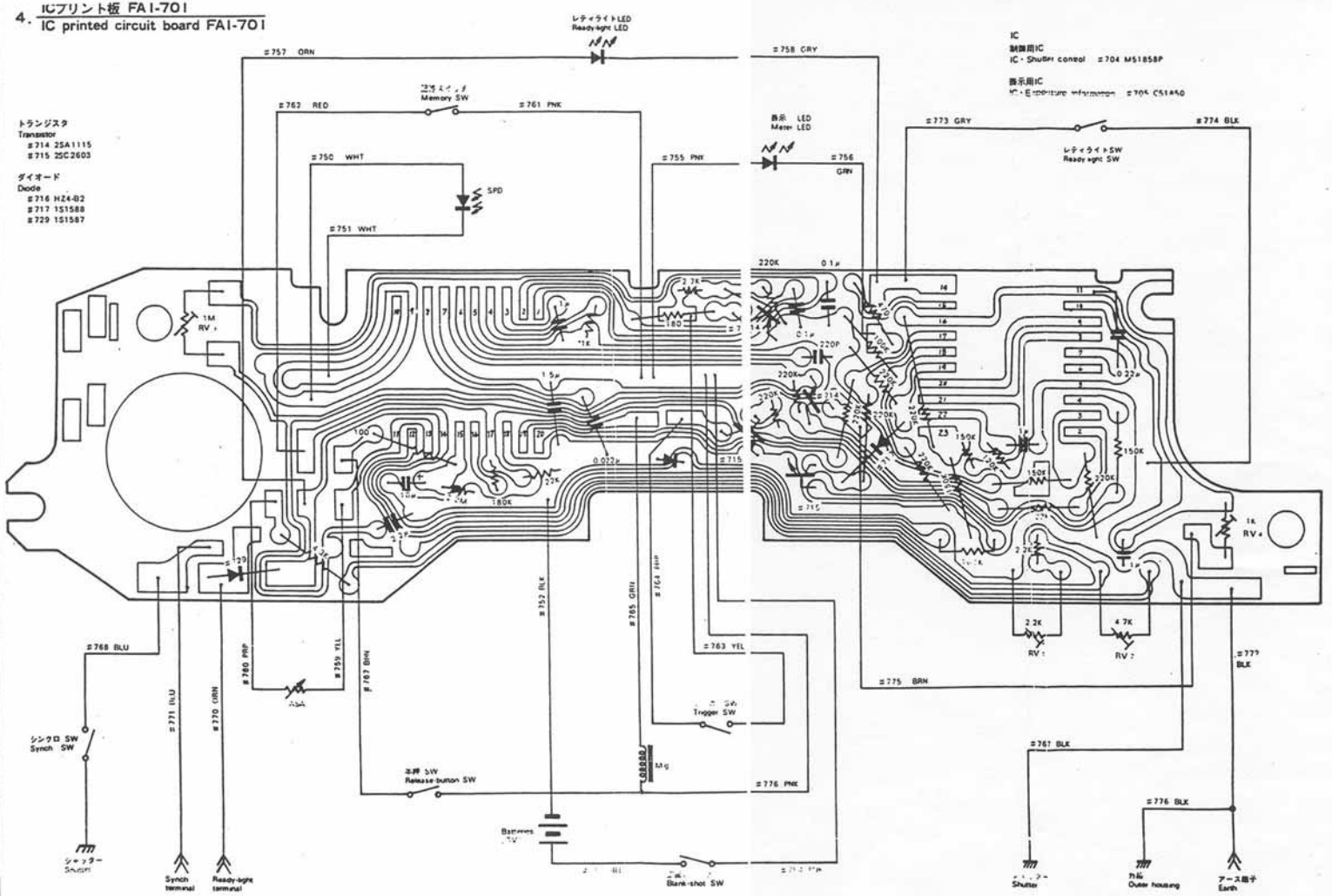
Meter-ON	To depress Release button halfway
Manual (Auto) mode	To set Shutter mode selector to Manual (Auto)
ICC 1 (approx. 5 mA)	Power supply current flow on Meter-ON
ICC 2 (approx. 10 mA)	Power supply current flow on Memory SW-ON
A90	1/90 sec. speed; automatically set by speed-light SB-101
Critical shutter speed	Abnormal high speed delivery (approx. 0.49 - 0.98 ms)

3. Main Parts

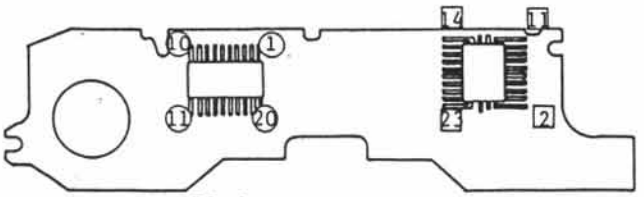
Name & Illustration	Circuit
Shutter FA1-100  	
ASA base plate FA1-683  	 Specification : 2.25 kΩ (ASA 25) - 7.65 kΩ (ASA 1600) 0.9 kΩ per 1 f/stop
SPD FA1-708  	 Voltage of Pin 13 of IC #704 changes approx. 36 mV/LV.

Name & Illustration	Circuit
LED holder FA1-72  	
Blank-shot SW FA1-492  	Auto mode  M/B/R mode 
Synch terminal guide ring FA1-31  	

4. ICプリント板 FA1-701
IC printed circuit board FA1-701

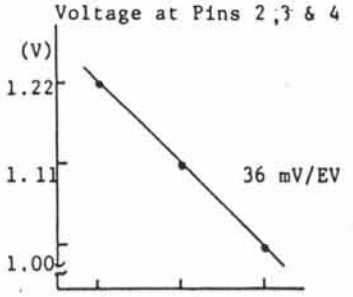


[7] Voltage of IC Printed Circuit Board



IC·shutter control · #704 — IC·exposure information #705

Voltage at Pins 2, 3 & 4



IC #704

Pin	Release button SW-ON	Memory SW-ON	Operation
1	1.10	1.10	A90
2	0	1.4(4)	Trigger input
3	1.11(2)	1.11(2)	Auto shutter speed
4	1.11(2)	-	
5	1.53	1.53	Regulated voltage
6	-	-	
7	3.0	3.0	Vcc
8	-	-	
9	0.52	0.52	ASA
10	0.52(3)	-	ASA
11	0.52	0.52	ASA
12	0.12	0.12	Regulated voltage
13	0.52	0.52	ASA
14	4.0(4)	4.0(4)	Speed-light signal
15	3.0(5)	3.0(5)	Meter hold timer
16	0	2.2	
17	0	3.0	Memory signal
18	0	0	GND
19	3.0	0.1	Electomagnet
20	2.9(6) 0.2	-	Warning signal

IC #705

Pin	Release button SW-ON	Memory SW-ON	Operation
2	0.1	3.0(7)	Vcc control
3	0.6	0.1	Pin 2 control
4	0	0.6	Pin 3 control
5	0	0	
6	-	-	
7	-	-	
8	0.1(8)	-	LED blinking
9	0.6(8)	-	LED blinking/BC
10	0	0	GND
11	2.7(9)	0	Vcc
14	2.0(4)	2.5(4)-4.0(7)	Ready-light LED
15	0.15	1.5-3.0(7)	Meter LED
16	2.7(9)	0	Vcc
17	2.8(10)	2.8	LED blinking/ Ready-light
18	1.0	1.0	LED blinking reference voltage
19	1.53 0.5(11)	-	Speed-light signal
20	0.6(8)	-	
21	0.1(8)	-	
22	0.1(8)	-	Blinking osillator
23	0.8(8)	-	Blinking osillator

Note: Measurement should be made in the settings; ASA 100 · LV12 · 1/125 sec. · f/5.6.

(1) Shutter speed becomes faster when connecting the test prod of voltmeter.

(2) Shutter speed becomes slower when connecting the test prod of voltmeter. (Memory SW-ON)

(3) Unstable read-out, with noise affected.

(4) When speed-light is fully charged.

(5) When Release-button SW is closed.

(6) 2.9 V when warning not emitted. 0.2 V when warning emitted.

(7) Read-out varies according to the input impedance of voltmeter in use.

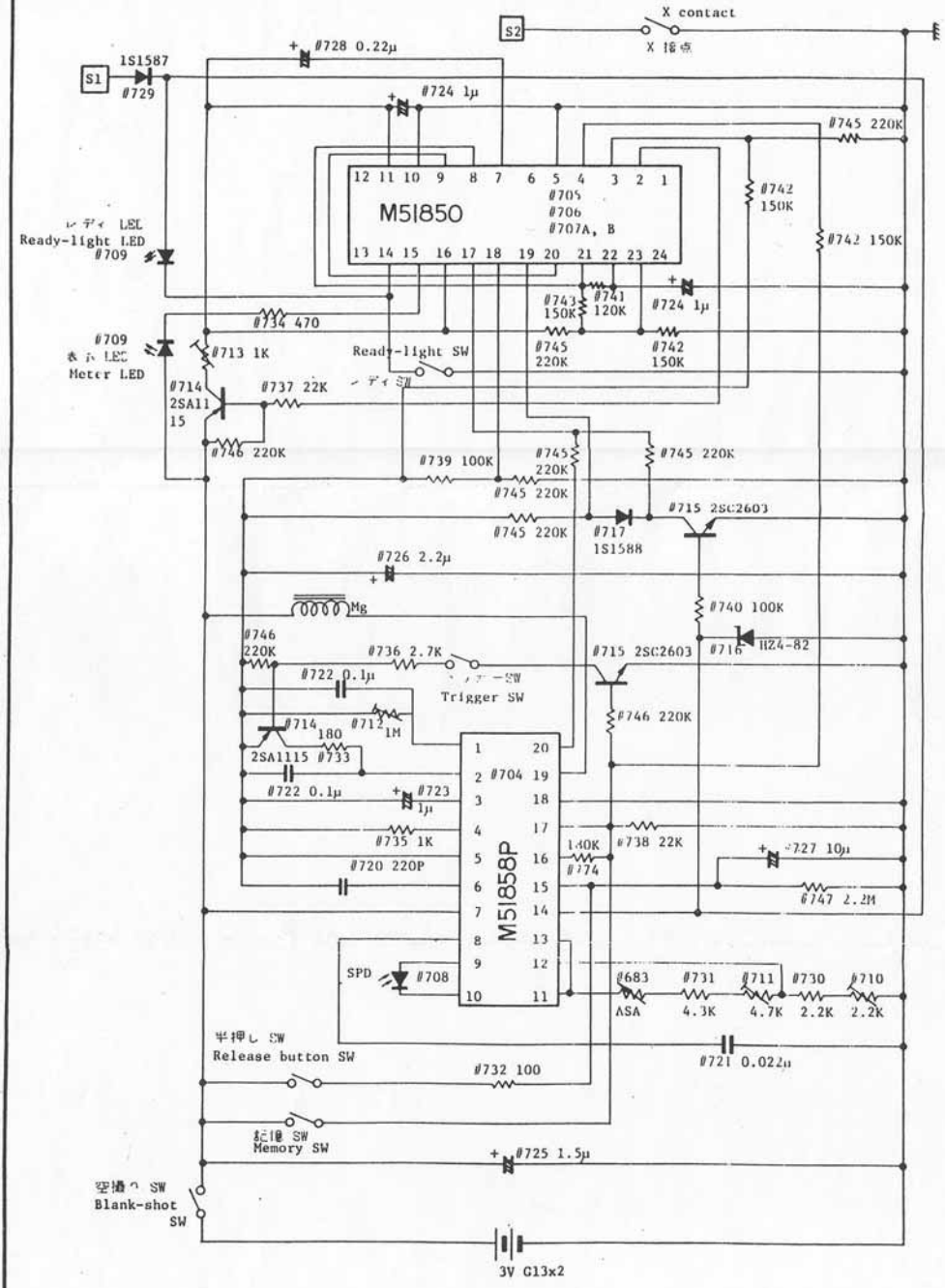
(8) Wave form of oscillation of 5.3 Hz when warning emitted.

(9) Read-out varies according to adjustment of battery check voltage.

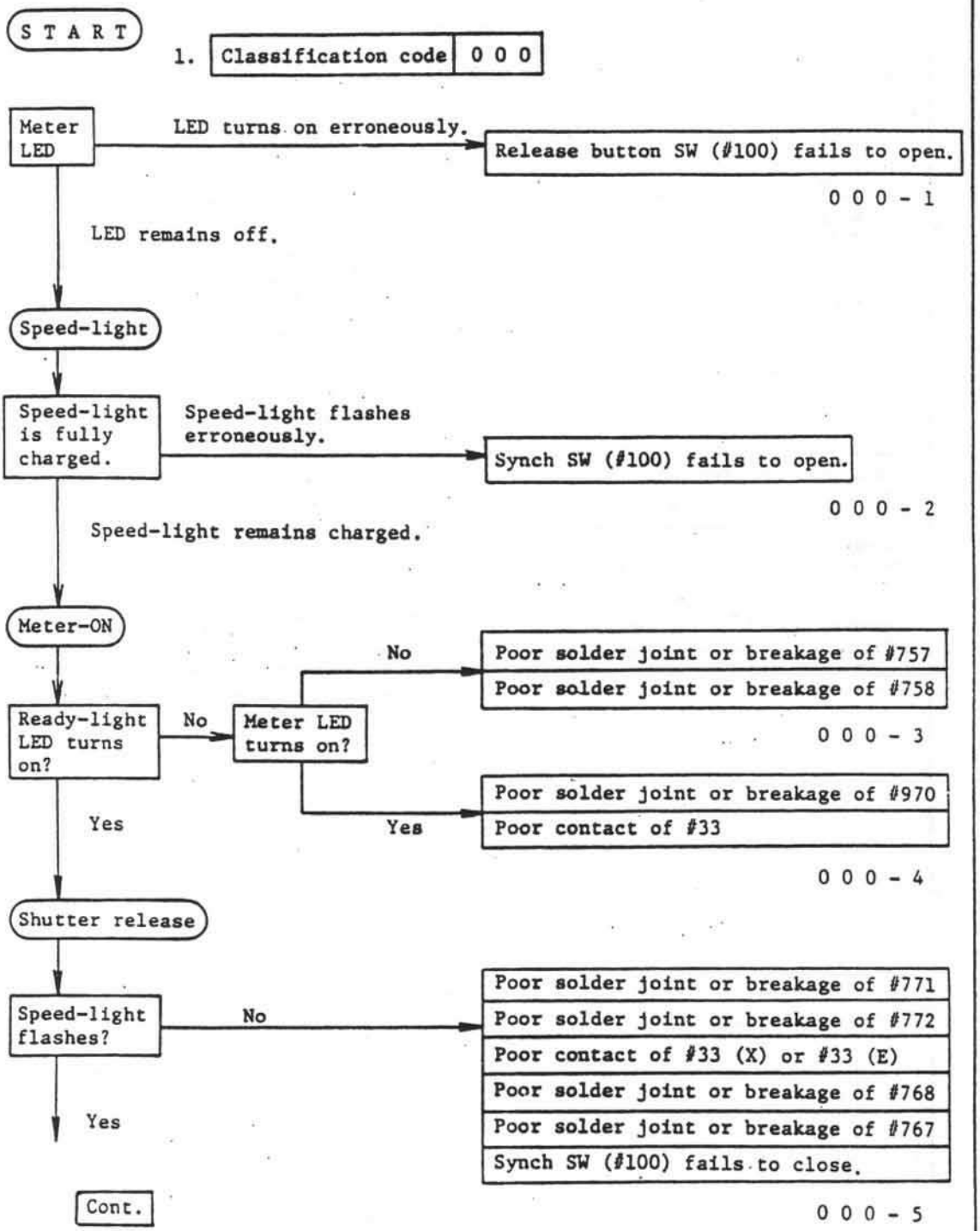
(10) 2.1 V when warning or ready-light emitted.

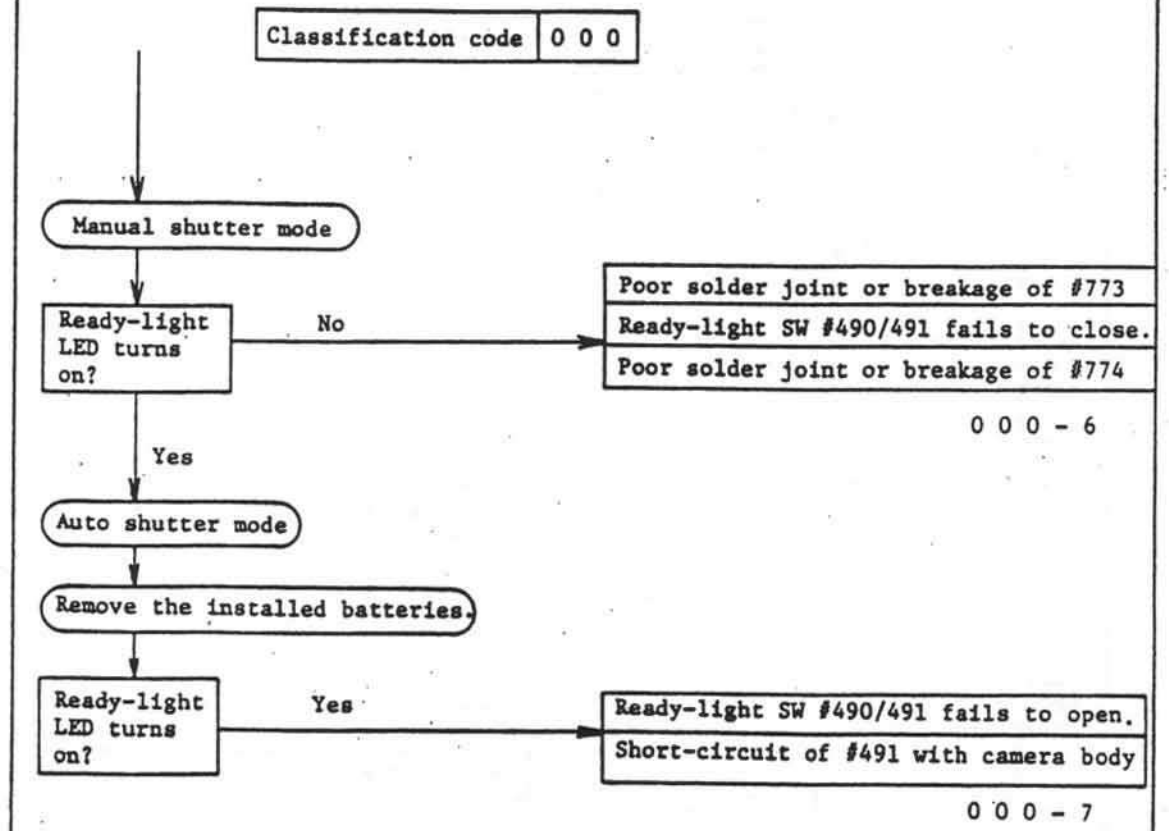
(11) 1.53 V when LED turns on. 0.5 V when speed-light turns on.

(8) 回 路 図
Circuit Diagram

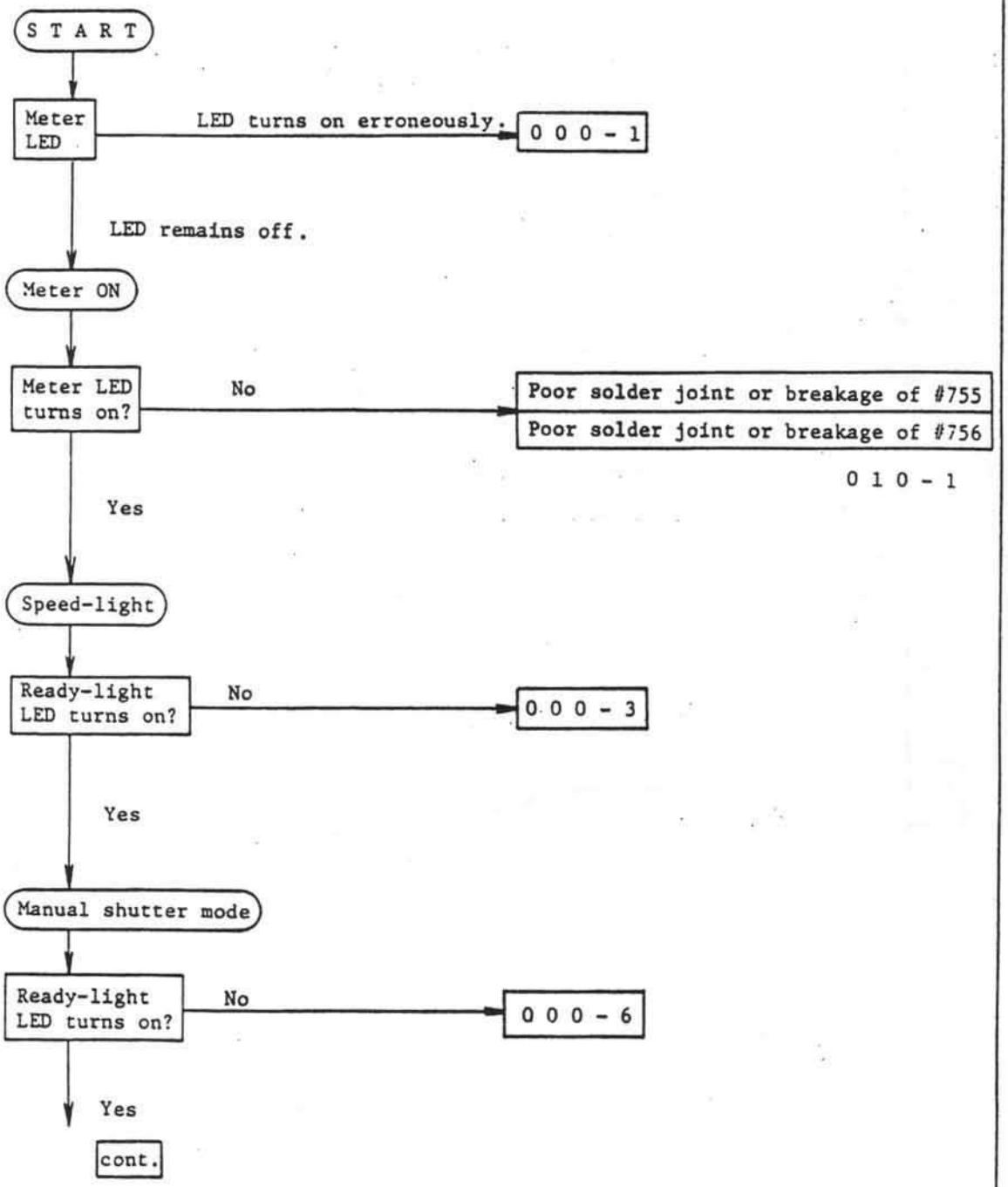


[9] Troubleshooting Chart

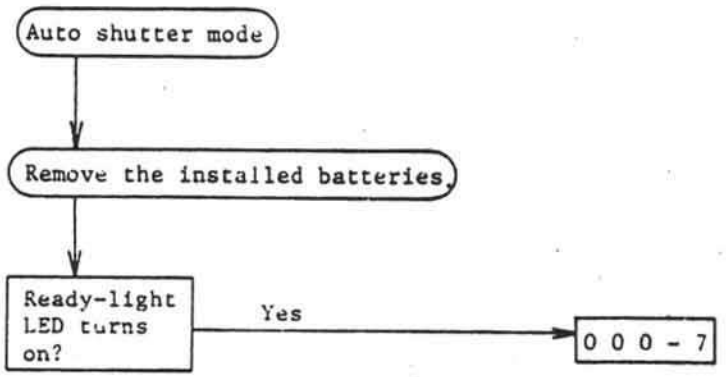

START
1. Classification code 0 0 0
Meter LED
LED turns on erroneously.
Release button SW (#100) fails to open.
0 0 0 - 1
LED remains off.
Speed-light
Speed-light is fully charged.
Speed-light flashes erroneously.
Synch SW (#100) fails to open.
0 0 0 - 2
Speed-light remains charged.
Meter-ON
Ready-light LED turns on?
No
Meter LED turns on?
No
Poor solder joint or breakage of #757
Poor solder joint or breakage of #758
0 0 0 - 3
Yes
Yes
Poor solder joint or breakage of #970
Poor contact of #33
0 0 0 - 4
Shutter release
Speed-light flashes?
No
Poor solder joint or breakage of #771
Poor solder joint or breakage of #772
Poor contact of #33 (X) or #33 (E)
Poor solder joint or breakage of #768
Poor solder joint or breakage of #767
Synch SW (#100) fails to close.
0 0 0 - 5
Yes
Cont.


Classification code
0 0 0
Manual shutter mode
Ready-light LED turns on?
No
Poor solder joint or breakage of #773
Ready-light SW #490/491 fails to close.
Poor solder joint or breakage of #774
0 0 0 - 6
Yes
Auto shutter mode
Remove the installed batteries.
Ready-light LED turns on?
Yes
Ready-light SW #490/491 fails to open.
Short-circuit of #491 with camera body
0 0 0 - 7

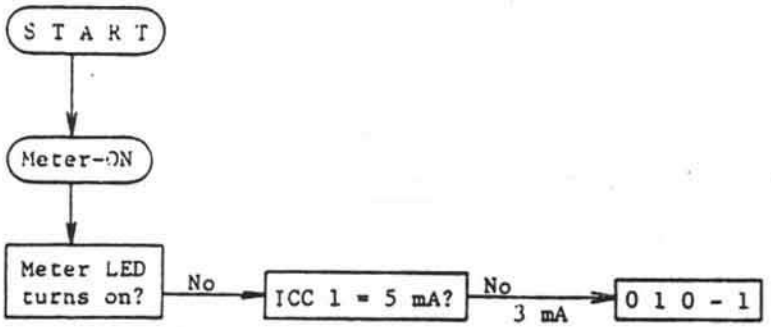
2. Classification code | 0 1 0



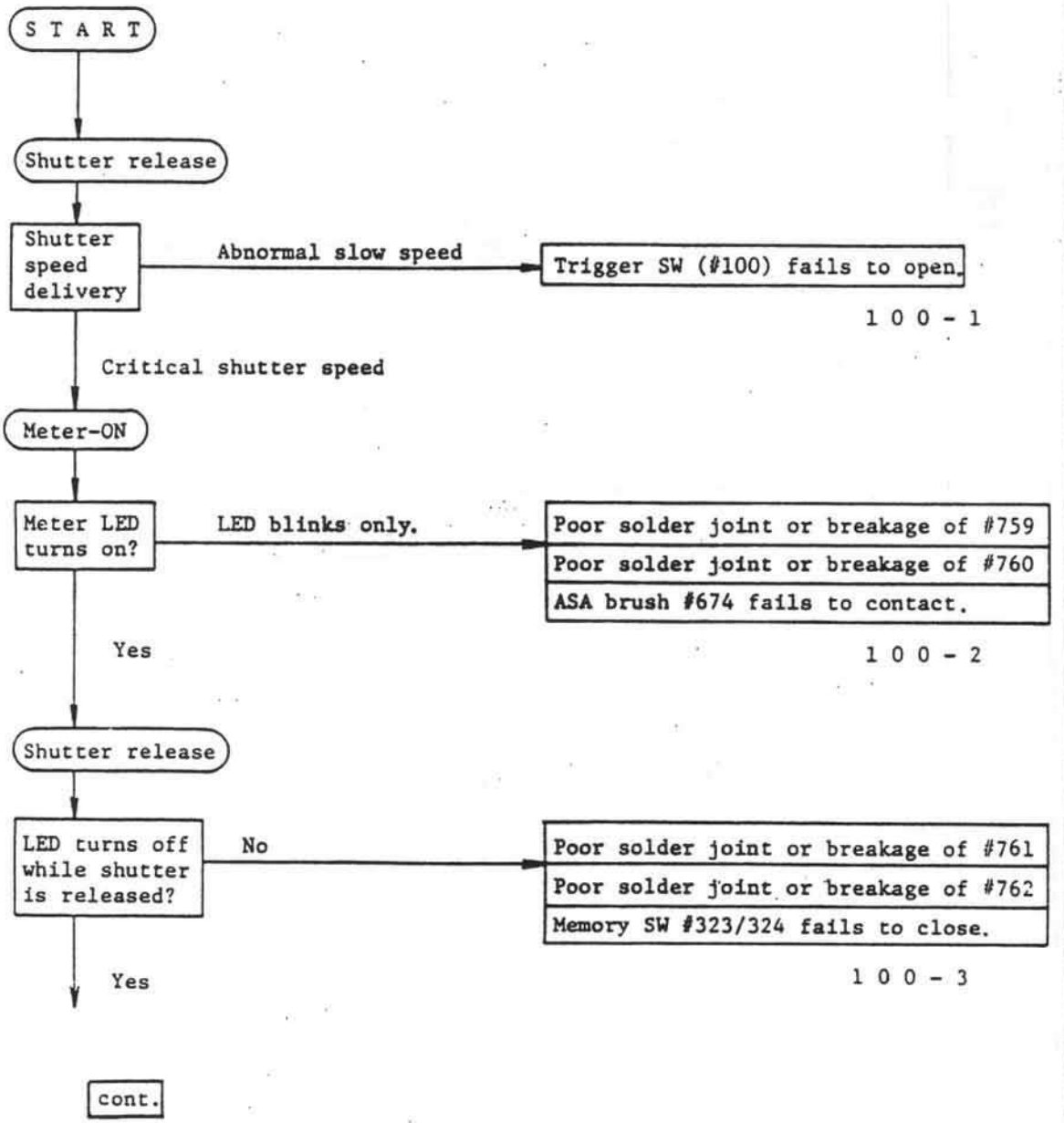
Classification code	0 1 0



Classification code	0 1 1



3. Classification code | 1 0 0



Classification code	1 0 0	1 0 1

Shutter release on slow speed

Voltage of Pin 19 of IC #704

Voltage goes low.

- Poor solder joint or breakage of #765
- Poor solder joint or breakage of #766
- Breakage of coils of electromagnet

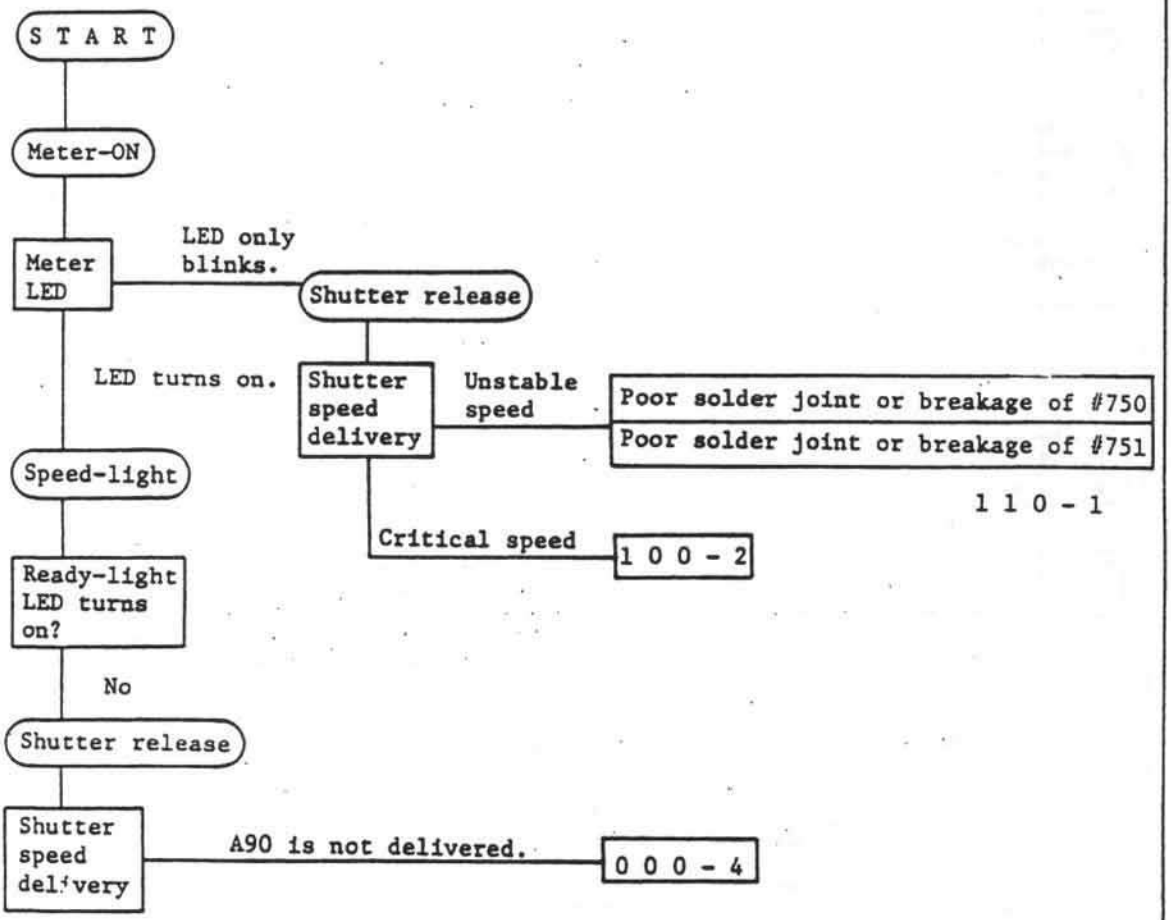
1 0 0 - 4

Voltage remains stable.

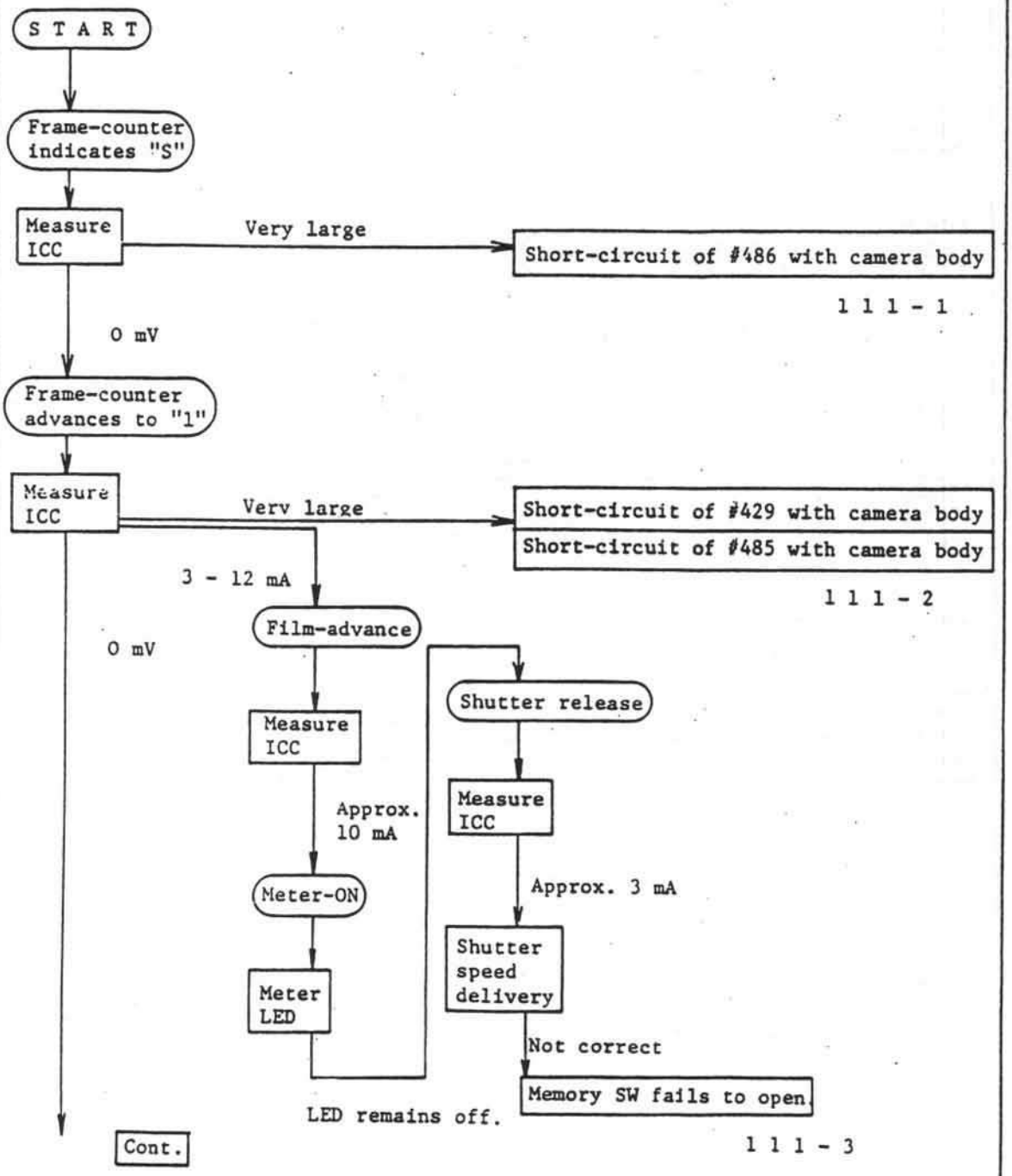
- Poor solder joint or breakage of #763
- Poor solder joint or breakage of #764
- Trigger SW (#100) fails to close.

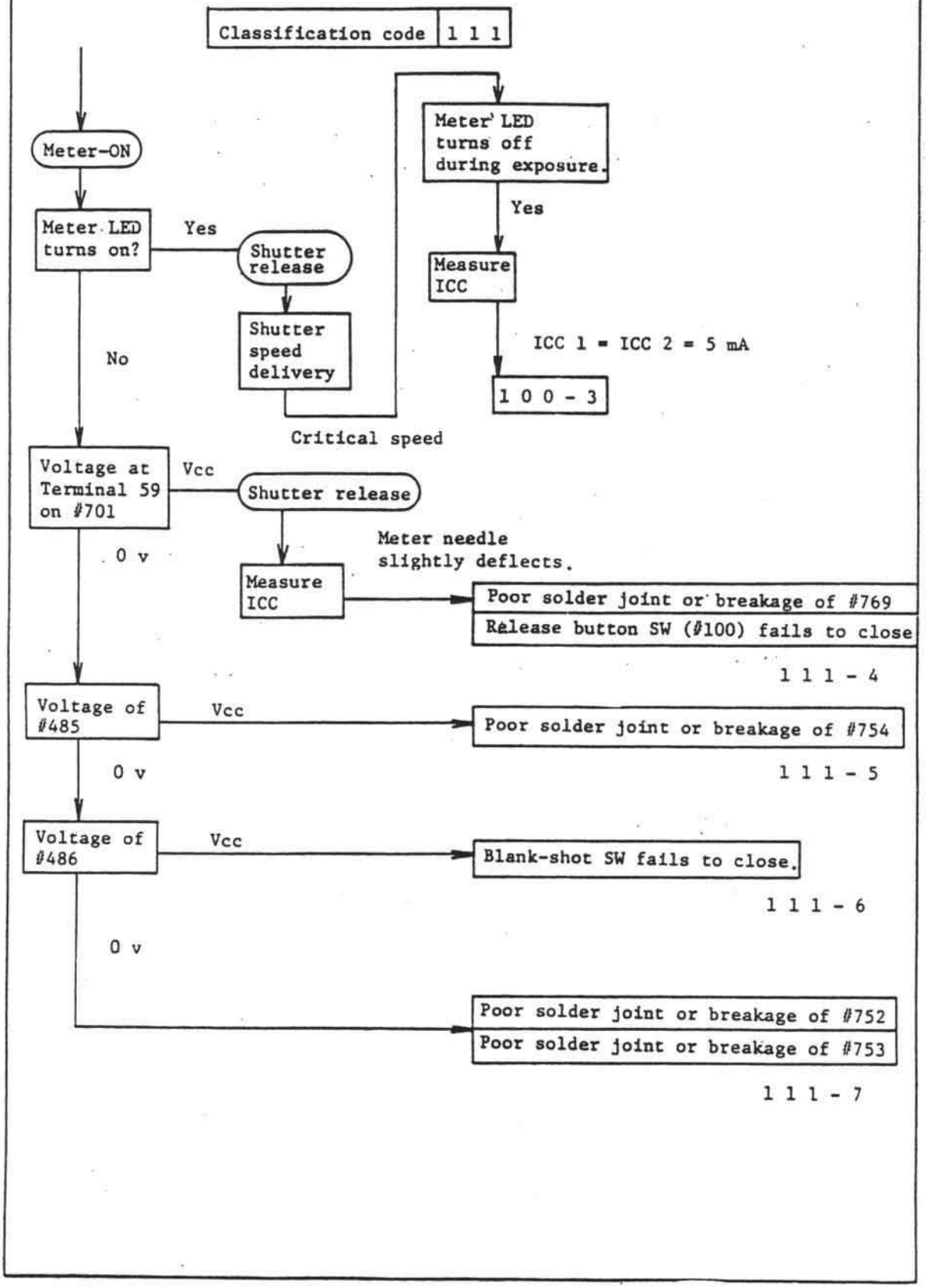
1 0 0 - 5

4. Classification code | 1 1 0



5. Classification code | 1 1 1




Classification code 1 1 1
Meter-ON
Meter LED turns on?
Yes
Shutter release
Shutter speed delivery
No
Meter LED turns off during exposure.
Yes
Measure ICC
ICC 1 = ICC 2 = 5 mA
1 0 0 - 3
Critical speed
Voltage at Terminal 59 on #701
Vcc
Shutter release
0 v
Meter needle slightly deflects.
Measure ICC
Poor solder joint or breakage of #769
Release button SW (#100) fails to close
1 1 1 - 4
Voltage of #485
Vcc
Poor solder joint or breakage of #754
0 v
1 1 1 - 5
Voltage of #486
Vcc
Blank-shot SW fails to close.
1 1 1 - 6
0 v
Poor solder joint or breakage of #752
Poor solder joint or breakage of #753
1 1 1 - 7

VIII Inspection Standard for Repair

Film Advance and Shutter Release Mechanism - - - - - - - - - R1

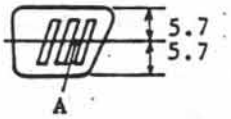
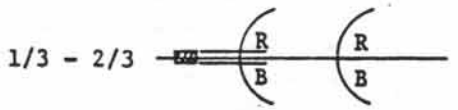
Shutter Speed and Synchronization Mechanism - - - - - - - - R2

Viewfinder - R3

Others - R3

Rφ

Inspection Standard for Repair

	Item	Standard	Remarks
Film Advance and Shutter Release Mechanism	Advance torque	Film unloaded : 3.5 kg- cm or less Film loaded : 4.5 kg- cm or less	Torques meter
	Spool	Slipping load : 140 - 270g	J15003
	Sprocket	Play of the tip of sprocket teeth: 0.8mm or less (at advance limit position)	J18064-1
		Frame-to-frame space : center line of frame-to-frame space doesn't align with perforation	-
		Vertical deviation of pictures: picture edge should be apart from perforation by 0.25mm or more	Slide calliper
	Aperture	Picture size : 36 ± 0.8 x $24 \ ^{+0.8}_{-0}$ mm	Slide calliper
	Shutter release button	Release power : 600g or less	J5019
		Release Stroke 1. Release button switch ON position : 0.76 ± 0.2mm 2. Shutter release : 2.46 ± 0.2mm Difference between 1 & 2 : 1.5mm or more Stroke after release : 0.5 mm or more To be measured at A point of shutter release lever 	J19004
	Rewind	1. Setting position of rewind mode (Shutter mode selector)  Rewind operation should be set when shutter mode selector is rotated 1/3-2/3 turn from B to R. 2. Once rewind operation is set, release button should be locked.	
		Friction torque 1. Film unloaded 2. Film loaded : 1.0 kg.cm or less	Torque meter

	Item	Standard				Remarks
Shutter Speed and Synchronization Mechanism	Exposure Time (Auto)	Tool lens 35mm f/5.6				J18085
		Bright-ness	ASA	Nominal value	Standard value(ms)	Allowance(ms)	J19036
		15	100	1/1000	0.98	0.64 - 1.48	J15199
			50	1/500	1.95	1.38 - 2.76	J18084
			400				
		12	100	1/125	7.81	5.52 - 11.0	
			25	1/30	31.2	22.0 - 44.1	
		9	200				
		Standard : 1/1000 : ± 0.6 EV 1/500 - 1/30 : ± 0.5 EV					
	Synch time	A 1/90 : 9 - 11 ms. M 1/90 : 9 - 12.4 ms.					
	Power OFF (on Auto-mode)	Approx. 0.49 - 0.98 ms					
	Shutter speed difference be-ween two adja-cent settings	1/1000 - 1/125 : 1.2 - 3.4 X 1/60 - 1/30 : 1.4 - 2.8 X					
	Shutter speed variation /de-viation at 1/1000 sec.	Variation : 0.45 EV Deviation : 0.6 EV					
	Warning signal	1/1000 : 0.4-1.5 ms or less 1/30 : 25 - 52 ms or less					
	Shutter curtains travel speed	With slit space of 21mm : 7ms or less					
	X Contact	Time lag for A 1/90 & M 1/90 : 0.3 - 1.2ms (slit space of 21mm) (Full open time : 1.5 ms or more)					
		Contact efficiency : 50% or more (standard time : 1ms, 2.5ms)					J19028-1
		Insulation resistance : 30MΩ or more (Measured at M 1/90)					
	Battery Checker	1. Meter LED LED ON : 2.68V LED OFF : 2.58V 2. Ready-light LED LED OFF : 2.5V					J15199 J18084
	Meter-ON duration	After finger is taken off release button: 20 ± 10 sec.					Stop watch

	Item	Standard for Reference	Remarks
Viewfinder	Parallax error	On film frame: 0.8mm or less (vertically and horizontally)	J18087 J15205
	View fram coverage	∞ - 0.8m : 84 - 100 %	Standard lens Tripod J18033
	Viewfinder frame inclination	within 1°30'	
	Diopter	-0.9 ± 0.5 dptr	Diopter scope
	Magnification	0.55 ± 0.05	
	LED	⊘ ϟ Both should be visible at the eye point of 40mm	J15205
Others	Flange focal distance	Flange focal distance: 27.02 ± 0.04 mm	J18086
		Parallel : Within 0.04mm	J19004
		Height difference between film guide rails: 0.23 ± 0.02mm	
	Waterproof	50 kg/cm^2 in 30 minutes	J18026 (J15202)

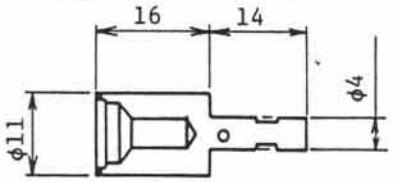
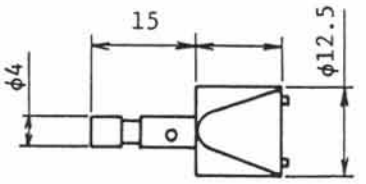
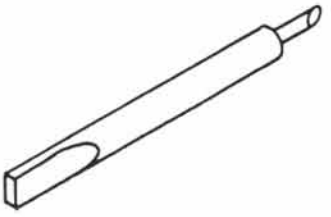
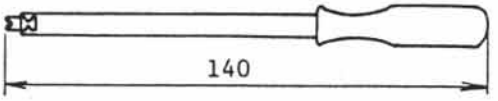
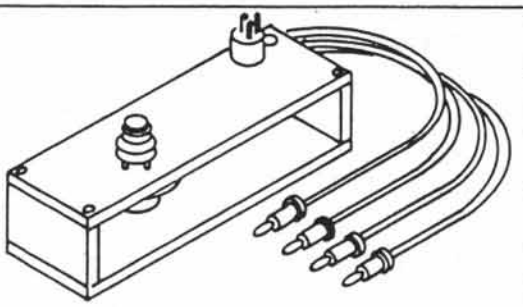
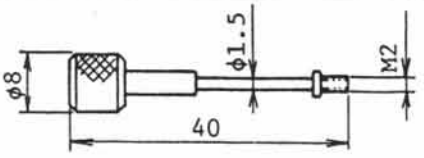
IX. Tool List

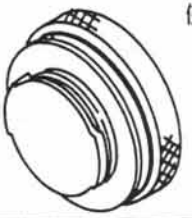
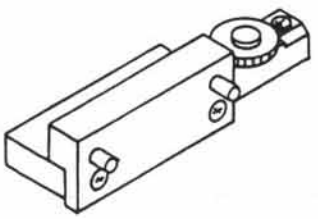
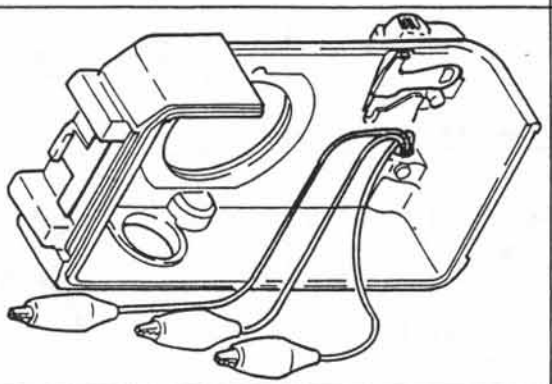
[1] Tool List - I1

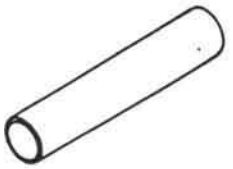
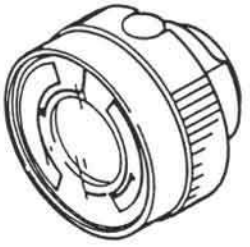
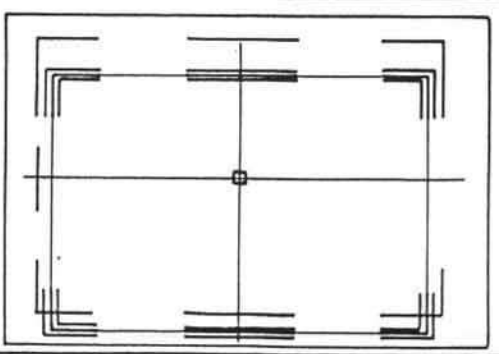
[2] Test Equipment List - - - - - - - - - - - - - - - - - - - I5

Lubricant and Binding Agent List

〔1〕 .工具ゲージ一覧表　　Tool List

工具番号 Number	名　　称 Name	略　　図　　単位 mm Illustration (mm)	区分 Class	備　考 Remarks
J11152	スプール軸受 #405用回螺器 Screwdriver for #405		A	23FB 共　通
J11165	巻上レバー止めねじ #405用回螺器 Screwdriver for #438	 φ1.1 P=9	A	
J15011	(レール面歪修正工具) 先端を加工して使用する。 Oリング用ナイロン棒 Nylon rod		B	
J15135	高周波ドライバー 先端を加工して使用する。 High-frequency screwdriver		A	
J15199	回路点検用工具電池 Tool battery		A	
J15201	ボデー取付工具ねじ Tool screw for camera body		A	
J15200	裏蓋代用スイッチング工具 Tool switch for camera back		A	

工具番号 Number	名称 Name	略図 Illustration (mm) 単位 mm	区分 Class	備考 Remarks
J15202-1	水圧テスト用防水キャップ Cap for water-proof test	 使用Oリング 9FB#917B（レンズ用）	B	J15202-1のみ 9F3B共通
J15202-2	水圧テスト用防水キャップ Cap for water-proof test	9F4B#807	B	
J15202-3	水圧テスト用防水キャップ Cap for water-proof test	9F4B#810	B	
J15202-4	水圧テスト用防水キャップ Cap for water-proof test	9F4B#810	B	
J15202-5	水圧テスト用防水キャップ Cap for water-proof test	9F4B#803	B	
J15023	記憶スイッチ点検工具 Tool for memory-SW check		B	
J15204	工具用外箱 Tool outer-housing		A	

工具番号 Number	名称 Name	略図 Illustration (mm) 単位 mm	区分 Class	備考 Remarks
J15205	アイポイント工具 Tool for eye-point check		B	
J18025	ボディバック出し Tool for flange focal distance check	工具リスト参照	A	9F3B⊕
J18026-1	水圧試験器 Water tank	工具リスト参照	B	〃
J18033	視軸出し工具 Tool for visual axis check	工具リスト参照	B	F2 ⊕
J18064-1	スプロケット歯位置出し測定工具 Tool for sprocket teeth positioning	工具リスト参照	B	FM FE ⊕ EM
J18085	測光用基準鏡玉 35㎜F5.6固定絞り Tool lens 35mm f/5.6		A	
J18086	ボディバック出し工具 Tool for flange focal distance check		A	
J18087	画角出し用標板 Plate for parallax check		3	

工具番号 Number	名称 Name	略図 Illustration (mm) 単位 mm	区分 Class	備考 Remarks
J5127	回螺器ホルダー Screwdriver holder	修理指針（35FB）参照	A	J11152 J11153 に使用 J11154
J5272	ストップリング プライヤー Pliers	修理指針（35FB）参照	A	㊥ FM FE EM
J15007	特殊ドライバー Special screw-driver	工具リスト参照	A	FT3㊥

〔2〕 汎用測定器一覧表 Test Equipment List

工具番号 Number	名称 Name	製造メーカー；仕様 Manufacturer/Model Number/Spec.	使用可能測定器 Remarks
J5018	棒状ばねばかり Tension gauge	0 - 110g	
J5019	棒状ばねばかり Tension gauge	0 - 500g	
J9008	視度望遠鏡 Diopter telescope	φ40x (82-115)	
J15206	トルクドライバー Torque screw-driver	Tohnichi ROTARY TYPE 1.5RTD Max 1.5kg.cm	
J18084	直流安定化電源 DC-regulated power supply		
J9003-3	デジタルボルトメーター Digital voltmeter	Hewlet Packerd製 3465B	J9003-2
J9004	直流電流計 Ammeter	横河電気製 タイプ2011 Yokokawa Electric Type 2011	
J9006	テスター Tester	三和製 501－2XTR Sanwa 501-2XTR	
J19004	インジケーター及びスタンド Dial indicator and stand	インジケーター 0.01 × 10㎜ スタンド 大菱計器製 ダイヤルコンパレーター PH－2型 （腕のみPH3用）	

工具番号 Number	名　　称 Name	製造メーカー，仕様 Manufacturer/Model/Spec.	使用可能測定器 Remarks
J19008-1	シンクロテスター Synch tester	富士計器製　F－3032A タイムラグ可変式 Fuji Keiki F-3032A	J19008-2
J19028-1	接触効率絶縁抵抗計 Contact tester	京立電気製　IE－2A3 60-%計　500V-MΩ計 Kyoritsu Electric IE-2A3	J19028
J19036	シャッター試験器 Shutter tester	京立電気製　EF－511N Kyoritsu Electric EF-511N	